HP Insight Environmental Observer Software User Guide

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Intended audience

This document is for the person who installs, administers, and troubleshoots HP Data Center Environmental Edge systems. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

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Overview

About HP Insight Environmental Observer

The HP Insight Environmental Observer is a web-based application that provides visualization of data center environmental and power data including:

- Rack and/or equipment cabinets temperature and relative humidity
- CRAH/CRAC temperature and relative humidity
- Differential subfloor air pressure
- Chilled water energy values
- Electric power and current values

Users can create customized alerts based on the monitored sensor points.

Observer can monitor a single data center or multiple data centers with a single software installation.

Components

The HP Insight Environmental software includes the following components:

- HP Insight Environmental Application Server
- HP Insight Environmental Observer Console—Visualization and monitoring application
- MySQL Database—Data storage
- HP Insight Environmental Imaging Server—Environmental images created from sensor data
- HP Insight Environmental Device Manager—Subsystem of Observer that provides interfaces to the managed sensor and data devices

For more information on using HP Insight Environmental software components and its components, see the *HP Insight Environmental Software Installation Guide*.

System requirements

Before you install Observer software and related components, the following minimum specifications must be met.

Hardware requirements

Hardware	**Requirements**
Processor	Quad-core processor (Inte®l or AMD®)
Memory	8 GB RAM
Disk space	750 GB (hot swap RAID 1 preferred) with battery-

Hardware	Requirements
	backed caching
Power supply	Redundant power (2)
Connectivity	Gigabit Ethernet adapter (2)

Software requirements

Software	Requirements
Operating system	Windows Server® 2008 R2 Standard (64 bit) Windows Server® 2003 R2 Standard Edition (64 bit) Windows Server® 2008 Enterprise (32 bit) Windows Server® 2003 R2 Enterprise Edition (32 bit)
Required software	Adobe® Reader
User privileges	User with full administrator privileges configured for installation
Secure access	SSL certificate file (if secure access is enabled)

Client PC requirements

Client PC	Requirements
Supported browsers	Internet Explorer 7.0.x or later Mozilla Firefox 2.0.x or later Enable cookies in the browser
Flash plug-in	Adobe® Flash® Player 9.0.x or later

Accessing the HP Insight Environmental Observer

To install Observer, see the *HP Insight Environmental Installation Guide*. To access Observer:

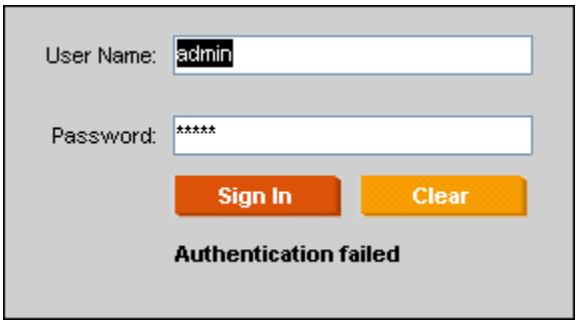
1. Launch any supported browser applications.
2. Obtain the server name or IP address and port from the system administrator who configured the system. The default port is 8080 for non-secure access and 443 for secure access. If you are accessing Observer from the server where it is installed, substitute `localhost` for the server name.
3. Browse to one of the following standard non-secure web addresses:
   - http://[*server name*]:[*port*]/HPIEO, where [*server name*] is the name of the server and [*port*] is the name of the port
   - http://[*server IP address*]:[*port*]/HPIEO, where [*server IP address*] is the server IP address and [*port*] is the name of the port
   - http://localhost:8080/HPIEO when using the server on which Observer is installed.

   To set up a secure access using SSL, see Secure web access (on page 7). If you encounter an issue accessing the web address, contact the system administrator.

   The application splash screen appears. If the login screen does not appear within a few seconds, press **Enter,** or select **Click to enter** on the splash screen.

4. Enter a valid username and password in the login window to authenticate the application.

If the authentication is unsuccessful, a message appears, indicating that the login attempt failed.



If the authentication is successful, access is granted, and the HP Insight Environmental Observer console window appears. A welcome message and instructions for selecting a data center or zone to view and manage appear.

Welcome to HP Insight Environmental Observer™!
Use the navigation tree on your left to start visualizing sensor data and the status of any alerts. For more help, click the Help menu above to access the HP Insight Environmental Observer™ User's Guide.

If you have logged in previously, the window displays an updated view for the data center or zone that was selected before logging out.

Functionality is accessible or restricted depending on the user role. For more information, see User accounts (on page 84).

Secure web access

An SSL certificate is required before you can configure the Observer to use a secure web access. Self-certified or third-party certifications are supported. For more information, see Security options (on page 92).

HP Insight Environmental Observer console interface

Interface components

Callout	Component	Description
1	Menu bar	Includes the main task tabs for the portal.
2	Global information	Contains all active alerts and warnings for all data centers installed.
3	System status	Contains the status of all installed components.
4	Navigation panel	Contains the sensors in each location configured at installation by data center and zone. HP Insight Environmental Observer console displays information based on additional user input.
5	Data view window	Contains summary and detailed information about base stations, racks, and CRAH/CRACs.

Callout	Component	Description
6	View menu bar	Includes tabs for viewing options.

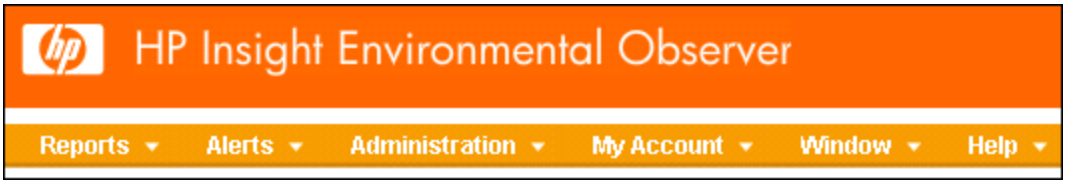
Menu bars

HP Insight Environmental Observer has the following user types:

- Administrator
- Power user
- Standard user

Each user type has a different view that correlates with the functions allowed for that user role. The primary differences appear in the menu bars.

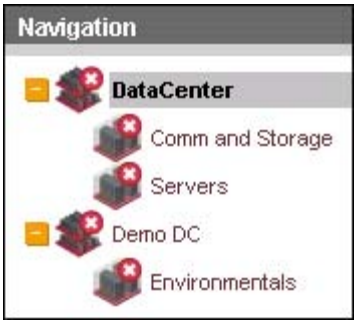
Administrator menu bar



Power and Standard user menu bar

Navigation panel

The Navigation panel appears to the left of the HP Insight Environmental window. The panel displays a hierarchical list of the data centers and zones configured at installation.

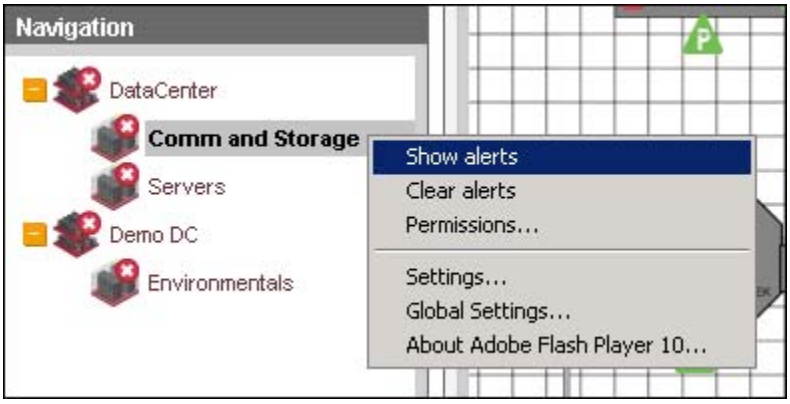


To choose a data center or zone, select an icon or its corresponding text label.

Icon	Description
Data Center	The icon and text label represent the data center the user can view. • When the icon and label are red, active alerts are in at least one zone in the

Icon	Description
	data center. • When the icon and label are yellow, warnings are in at least one zone in the data center. Data centers are configured at installation.
Zone	The icon and text label represent the zone the user can view. • When the icon and label are red, active alerts are in that zone. • When the icon and label are yellow, warnings are in that zone. Zones are configured at installation.

To navigate directly to the Alerts menu, right-click the data center or zone, and select **Show alerts**. For more information on alerts, see Alerts menu (on page 68).



The content of the Data View window changes to correspond to the data center and zone selected on the Navigation panel.

When you log out, the application saves the state of the Navigation panel. The next time you log in, the Observer displays that information in the Data View window.

Setting permissions

NOTE: Administrators automatically have permission to view all data centers and zones.

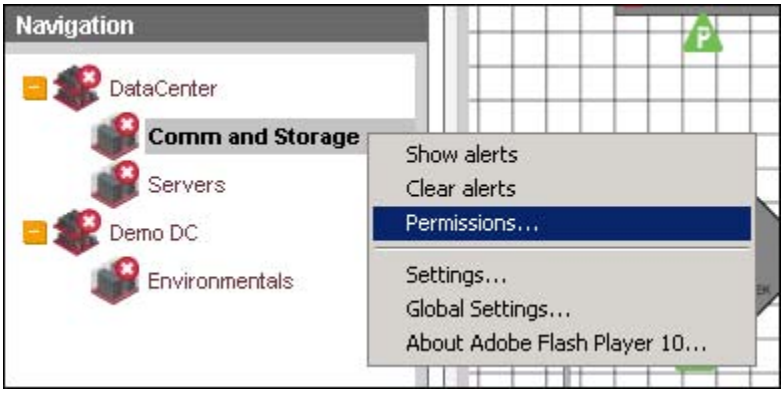
As users are added to the system, an administrator must set each standard user's permissions to enable the user to access monitored data centers and their corresponding zones. The following permission options are available:

- Data center level only—Provides a high-level view of the monitored data center.
- Data center and corresponding zones—Provides more details of the monitored components within the data center. For a user to have permission to view a zone, the user must have permission to view the data center where the zone is located.

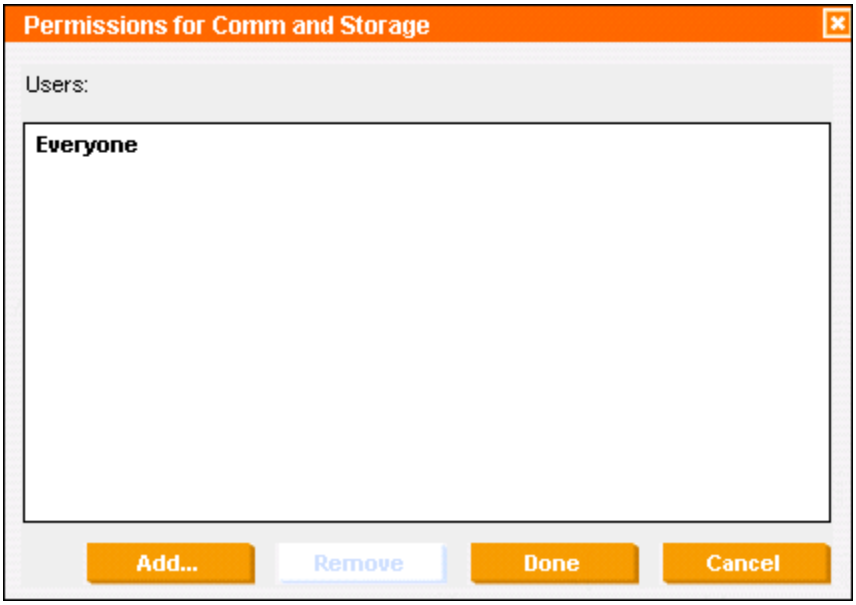
Setting the permissions by individual user is the most secure option. However, an administrator can give every user permission to view a data center or zone, avoiding the requirement to add each new user's permissions, by adding Everyone.

To set user permissions:

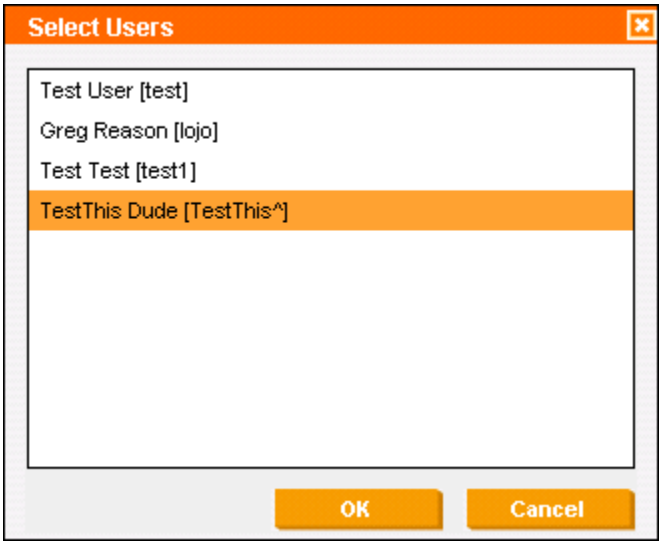
1. In the Navigation panel, right-click on the data center or zone, and select **Permissions**.



The Permissions window for the selected data center or zone appears, showing a current list of all users with access to the selected data center or zone.



2. To give a user permissions to the zone, select **Add**. The Select Users window appears.



- To give an individual user permission to the data center or zone, highlight the user and select **OK**, or select **Cancel** to close without saving.
- To give all users permission to the data center or zone, highlight **Everyone** and select **OK**, or select **Cancel** to close without saving.

3. To revoke a user's permissions to the data center or zone, highlight the user, and select **Remove**.
4. After setting the user permissions, select **Done** to save the changes and close, or select **Cancel** to close without saving the changes.

Data View window

The Data View window is the area of the HP Insight Environmental Observer portal that displays detailed information, which might include the following tabs:

- Overview
- Metrics
- Imaging
- Active Alerts
- Alert History
- Base Stations
- Pressure Objects
- Racks
- CRAH/CRAC
- Power Meters

Which tab appears is determined by the following:

- The data center or zone that you selected on the Navigation panel
- The menu option that you select
- The tab that you select

Multiple windows might appear simultaneously. However, if more than one window is open, then the windows overlap completely. Close the visible window to view the window beneath it.

The Data View window can appears on tabbed pages or columns, depending on the view. Click a tab to go to that page. You can perform operations directly within the columns.

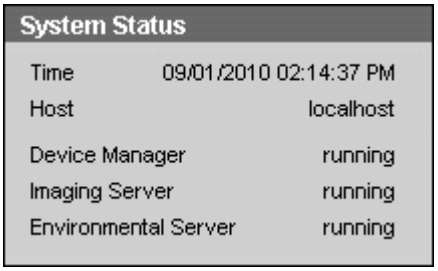
Global Information panel

The Global Information panel appears to the left of the HP Insight Environmental Observer window. It displays all alerts and warnings for all of the monitored data centers.

System status

The System Status panel appears to the left of the HP Insight Environmental window. It displays the following information:

- Date and time
- IP address of the Edge server
- Status of main components



Changing the appearance of columns

There are several ways to change the appearance of the columns in the Data View window:

- Sort the data in the columns (from top to bottom or bottom to top)
- Resize the width of columns
- Relocate the columns to reorder them
- Hide or show one or more columns

Sorting the data in a column

1. Click once in the column heading.

   A down arrow appears that indicates that entries are sorted from top to bottom.
2. Click the column heading a second time. An up arrow appears that indicates that the entries are sorted from bottom to top.

   Every time you sort the data in one column, the order of data in other columns changes to correspond appropriately.

Resizing the width of a column

1. Position the mouse pointer over the headings between that column and the adjacent column until the pointer becomes a double-headed arrow.
2. Drag the arrow to the left or right until the column is the correct width.

   The adjacent column moves but is not resized.

Relocating a column

1. Position the mouse pointer over the heading of the column until the hand pointer appears.
2. Drag the heading to the left or right, and release the mouse button when the moving column appears over the columns between which you want to relocate it.

3. The other columns shift to accommodate the new column.

Hiding a column

1. Position the mouse pointer over the Plus button (+), above the vertical scroll bar at the right of the page, until the hand pointer appears.
2. Click the mouse to display a panel with checkboxes for the columns on the page. Check marks appear for columns that are showing.
3. Choose one of the following options:
   - To hide a column, click inside the checkbox to remove the check mark.
   - To show a column, click inside the checkbox to display a check mark.

   The application shows or hides the columns accordingly.

Printing data

1. Right-click anywhere inside the Tabular rows of data.
2. Select **Print table**.

Resizing the Data View window

To resize the Data View window, select **Maximize/Restore** at the upper right corner of the window

To manually resize the Data View window and resize the Navigation panel accordingly:

1. Position the mouse pointer over the middle of the leftmost border of the Data View window until the hand pointer appears.
2. Drag the border to the left or right, and release the mouse button when the window and panel are resized as required.

Closing the Data View window

To close a particular Data View window, select **Close** at the upper right corner of the window.

To close all Data View windows, select **Window,** and then select **Close all**.

To begin using the application again, select an icon on the Navigation panel. A view of the selected area opens on a corresponding Overview tab.

Views

Data center views

In the Data View window, users have several different ways to view general and detailed data relating to sensors, including real-time and historical data. Administrators can perform additional operations.

The HP Insight Environmental Observer provides all users with several different ways to view both high-level and detailed data relating to all sensors, including real-time data and historical data, in the Data View window. Administrators have privileges to perform a few additional operations.

The data center views include:

- **PUE View**—(Optional) Data center metrics that show current and past power consumption based on cooling, IT loads, general building lighting, and power loss. This view is only visible if PUE options are configured.
- **Overview**—Also known as a floor plan, the virtual map of sensor distribution at either data center or zone level.
- **Pre-Defined Metrics View**—Data center metrics that are not sensor data, but use the data collected to provide visibility of the efficiency of the various aspects of the data center.
- **Imaging View**—Static or animated images of live and historical sensor reading for either data center or zone level, overlaid on the Overview tab.
- **Active Alerts**—A list of active alerts that have not been cleared automatically or manually.
- **Alert History**—A list of all alerts, including cleared alerts and active alerts.
- **Wireless Sensor Network**—The communication routes and status information for all wireless devices installed in the network.
- **PDU**—A list of all PDUs installed in that zone, and their associated power data.
- **BCMS**—(Optional) A list of all BCMS devices installed in that data center, and their associated current, power, and power factor data for each monitored electrical panel.

Within each view, actions performed by the user affect what Observer displays.

PUE tab

The PUE view is an optional view that only displays if energy meters are installed and PUE options are configured. The view only exists at a data center level, and cannot be viewed from the individual zones.

Power consumption is divided into many categories, such as cooling power, IT power, general lighting, and power loss through transformers.

The PUE tab displays power consumption data, gathered from optional energy meters installed in the data center, in real-time charts and graphs. Collecting PUE data is useful in monitoring power usage and loss, and determining an ideal power consumption environment.

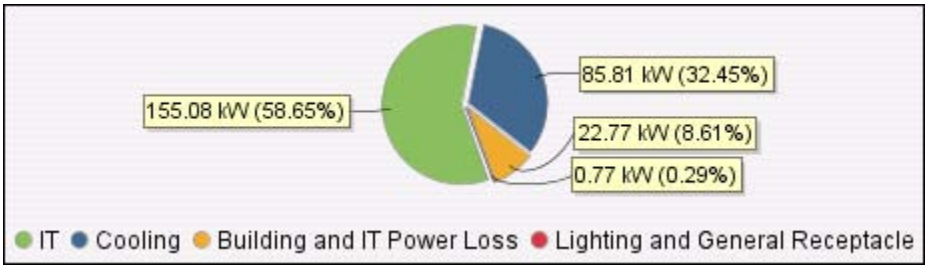
Accessing the PUE tab

1. From the Navigation panel, select the data center you want to display.
2. Select the **PUE** tab. The PUE view appears.

Viewing data center PUE information

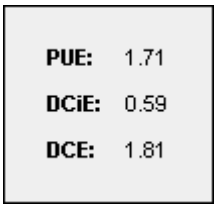
The PUE page has five sections:

- Power consumption allocation—A pie chart that displays how much power, in percentages, is used by different components of the data center.

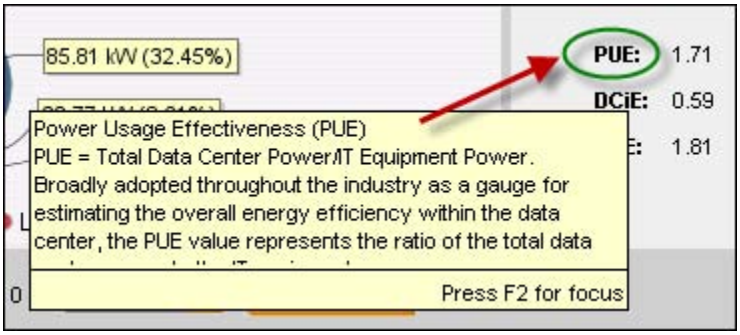


- Metric definitions—Values of the metrics that appear.
  - PUE—The closer the number is to 1, the more efficient the data center power.
  - DCiE—The equivalent of a PUE value. The closer the number is to 1, the more efficient the data center power.

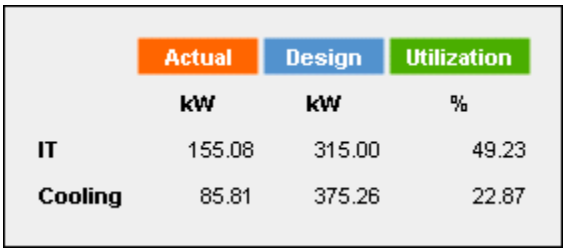
- DCE—The ratio of IT power over cooling power. The higher the value, the more efficient the data center power.



Hover the mouse over the metric to display the metric definition.

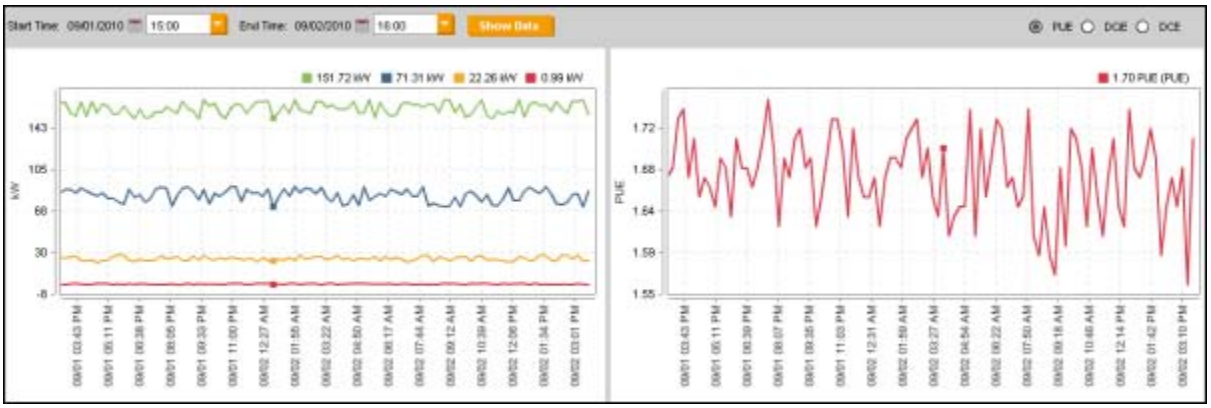

85.81 kW (32.45%)
PUE: 1.71
DCiE: 0.59
1.81
Power Usage Effectiveness (PUE)
PUE = Total Data Center Power/IT Equipment Power.
Broadly adopted throughout the industry as a gauge for estimating the overall energy efficiency within the data center, the PUE value represents the ratio of the total data
Press F2 for focus
0

- IT and cooling power utilization—Values of the IT and cooling power utilization.
  - Actual—Actual measurement of power consumption.
  - Design—Power capacity limit for the metric.
  - Utilization—Percentage of actual consumption, compared to design capacity.



	Actual	Design	Utilization
	kW	kW	%
IT	155.08	315.00	49.23
Cooling	85.81	375.26	22.87

- Power consumption continuous plotting (kW and PUE)—Graphs that continuously plot data and track historical data.

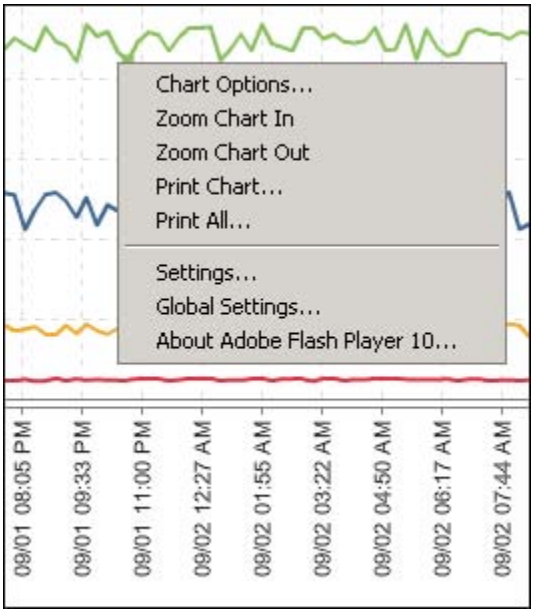


Adjusting chart and graph options

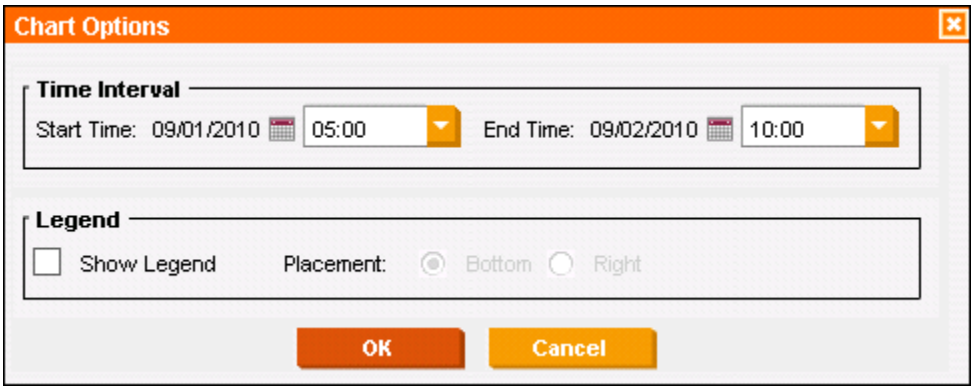
The charts and graphs plot data continuously as information registers with the system.

To adjust the information that appears:

1. Right-click inside the chart.

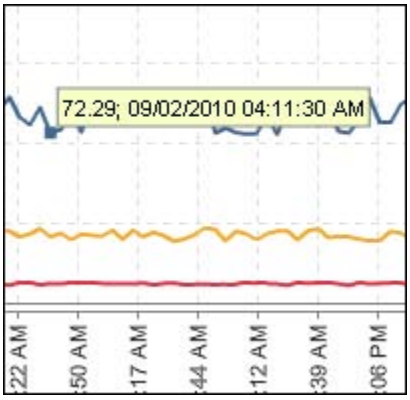


2. Select an option to adjust the view of the chart:
   - **Chart Options**—Displays options for adjusting the time interval and legend visibility.



   - **Zoom Chart In**—Displays a shorter time span on the chart.
   - **Zoom Chart Out**—Displays a greater time span on the chart.
   - **Print Chart**—Displays options for printing the current chart.

To view data at a specific time, move the mouse over the chart plot.



To adjust the axis line, see The base station toolbar (on page 26).

Overview tab

The Observer provides an Overview, or floor plan, of the selected data center. This view is a virtual map that shows a layout of the zones within a data center, including the CRAHs/CRACs, racks, base stations, and pressure objects in a zone, and provides access to the corresponding data.

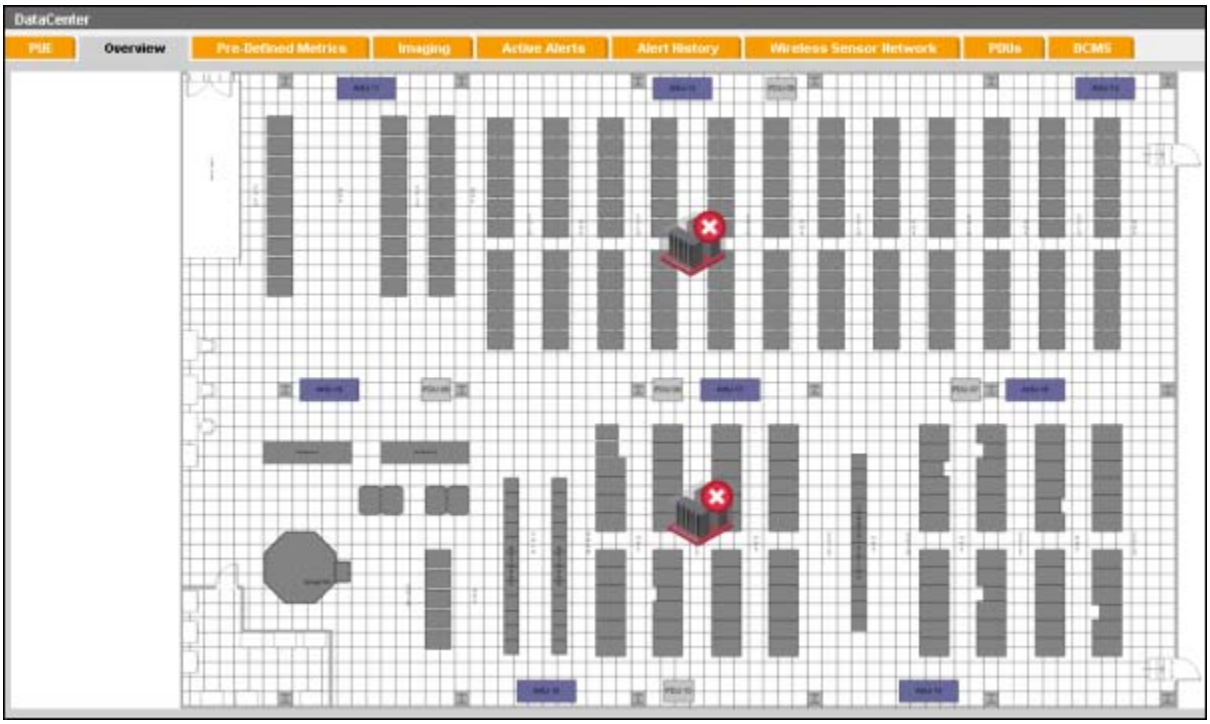
The Overview tab preserves, to scale, the spatial distribution of objects in each zone within each data center.

Accessing the Overview tab

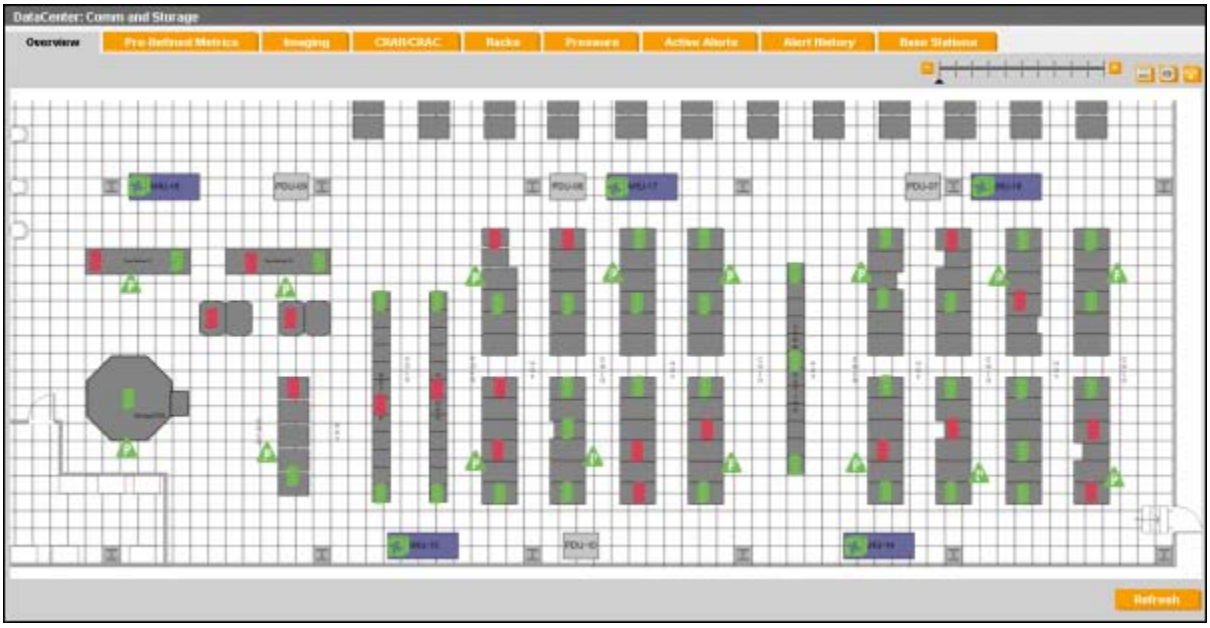
1. From the Navigation panel, select the data center or zone you want to display.
2. Select the **Overview** tab, which is the default tab.

   The Overview for the selected data center or zone appears. The page displays highlighted areas corresponding to the physical area covered for each zone in the selected data center.

   The following is a data center example.



The following is a zone example.



By default, the Overview tab displays a solid color background. However, a customized Overview layout image is configured during installation, providing a spatially accurate site-specific rendering of the layout. For more information on configuring the background image, see the *HP Insight Environmental Configurator User Guide*.

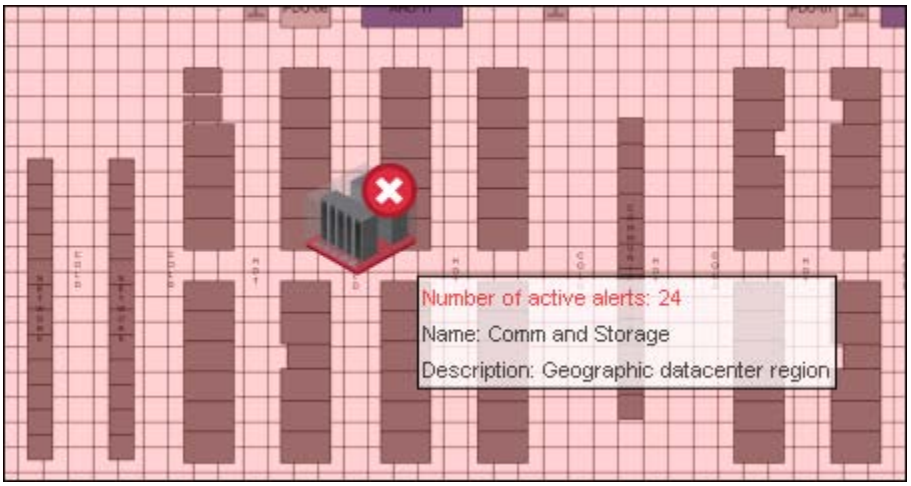
Viewing data center Overview information

On the data center Overview tab, all users can view the layout of all zones in the data center selected on the Navigation panel and some configuration information about each zone.

Each data center zone is represented by a status icon. The color of the icon indicates the zone status.

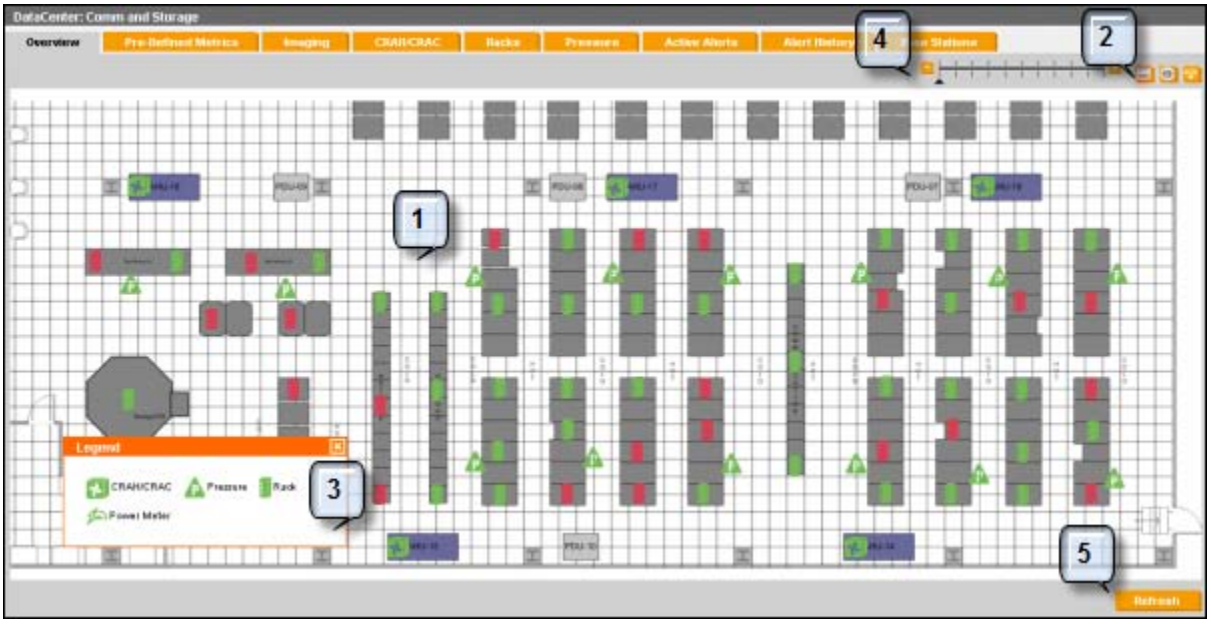
Zone color	**Description**
Green	Zone has no active alerts. Status is good.
Red	Zone has one or more triggered alerts.
Yellow	Zone has one or more triggered warnings.

Hovering over any zone icon highlights the entire zone area, and opens a new window that contains configuration information, including the name and description of the zone.



Viewing zone Overview information

On the Overview tab, you can view the layout and details for base stations, racks, pressure objects, and CRAH/CRACs in the zone selected on the Navigation panel. For any selected object, you can view configuration information, real-time data, or historical data.

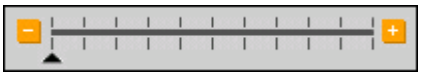


Callout	Description
1	Virtual map of the selected zone. Icons represent CRAH/CRACs, racks, and base stations. You can access configuration information, real-time data, and historical data for those objects from this view.
2	Show/Hide and Filter Visible Objects buttons. These buttons enable you to determine what appears in the window or refresh the data.
3	A moveable and dismissible legend. The panel provides a key to the icons that appear in the zone Overview and enables you to zoom in or out to change the view level.
4	A zoom slider that enables you to enlarge and shrink the Overview image. The slider also enables

Callout	Description
	you to change the details that appear.
5	The Refresh button enables you to refresh the view at any time to show current and updated information.

The zone Overview controls

These controls consist of a row of buttons at the upper right corner of the zone Overview tab which provides the user with additional ways to change the appearance of items on this page and a quick way to navigate.

Button	Icon	Description
Show/Hide Legend		Enables the user to either show or hide the Legend window
Filter Visible Objects		Enables the user to either show or hide any object type (base station, CRAH/CRAC, rack, or power meter) in the zone Overview
Change Zoom Level		Enables the user to zoom in to detailed areas of the Overview or zoom out to see the entire Overview
Show/Hide Locater View		Enables the user to locate the smaller area they are viewing within a large data center.

The zone Overview legend

The Legend window provides an explanation about all the icons that appear in the zone Overview.

The color of the icons that appear in the zone Overview also relay the device status:

- Green—The device does not have any active alerts associated to it.
- Yellow—The device is either not communicating or it has an invalid configuration.
- Red—The device has active alerts.

Filtering visible objects

1. In the upper right corner of the zone Overview, select the **Filter Visible Objects** icon.

The Object Filter window appears.

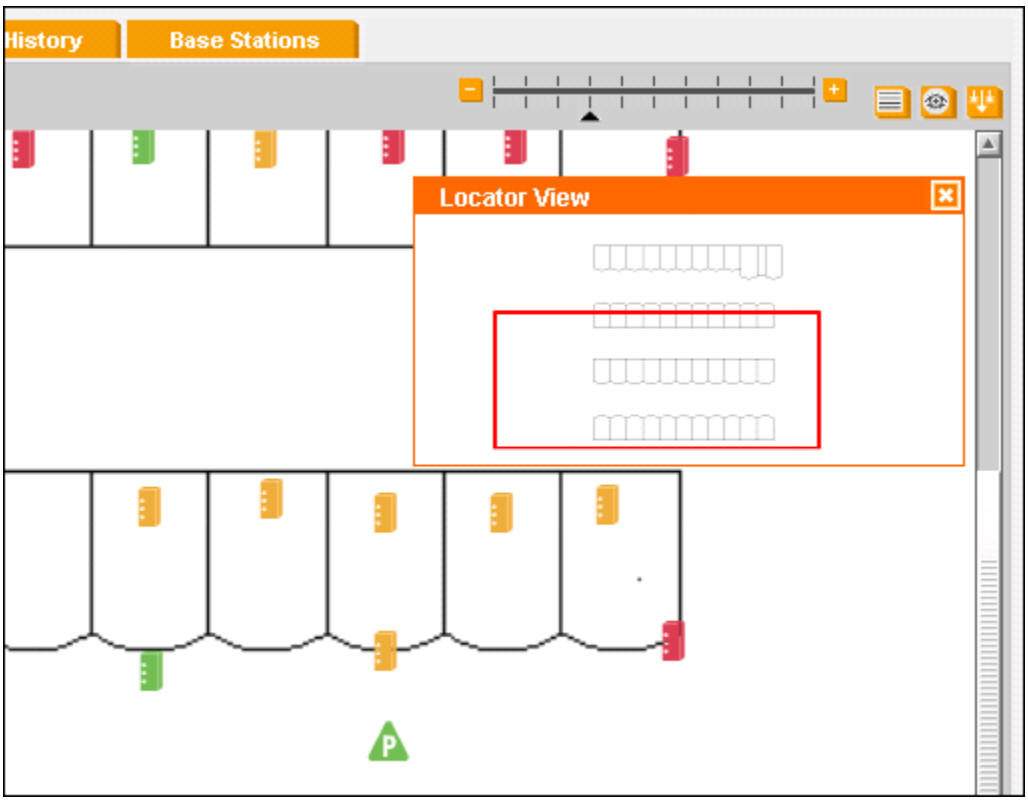
2. Select all items you want to display.
3. Clear all items you want to hide.
4. Select **OK** to save and close.

Locator view

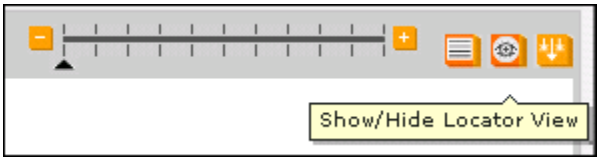
The Locator View is helpful when you have a large data center. It enables you to:

- See which portion of the large data center is visible.
- Zoom into a smaller area within the large data center project.
- Quickly and easily move from one portion of the room to another.

If you show the Locator View, a red rectangle outlines the specific small area you are viewing. You can drag the rectangle to view a different area.



To show the Locator View, select the **Show/Hide Locator View** icon at the top right of the interface.

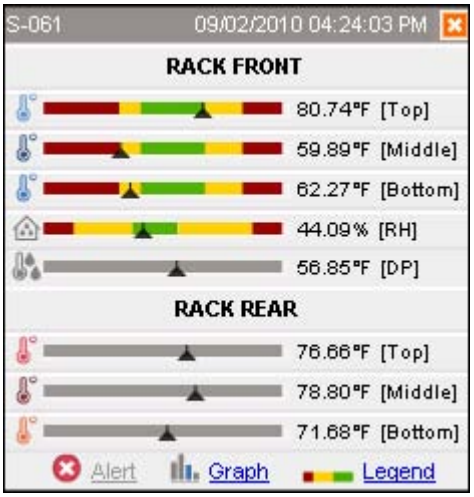


Viewing configuration details for individual components

Rolling the mouse over any icon displays a new window containing configuration information for that object.

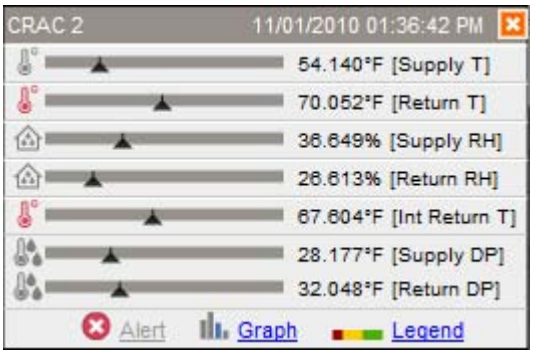
For base stations and racks, the configuration information specifies:

- The name of the base station or rack
- Temperature and humidity data
- Alerts (if any)



For CRAH/CRACs, the configuration information specifies:

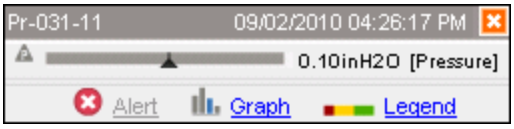
- The name of the CRAH/CRAC
- Temperature data
- Alerts (if any)



For Pressure base stations, the configuration information specifies:

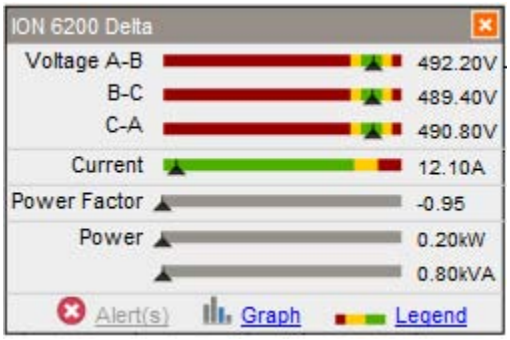
- The name of the pressure base station

- Pressure data
- Alerts (if any)



For Power Meters, the configuration information specifies:

- The name of the power meter
- Voltage data
- Current data
- Power data
- Alerts (if any)



Viewing data values

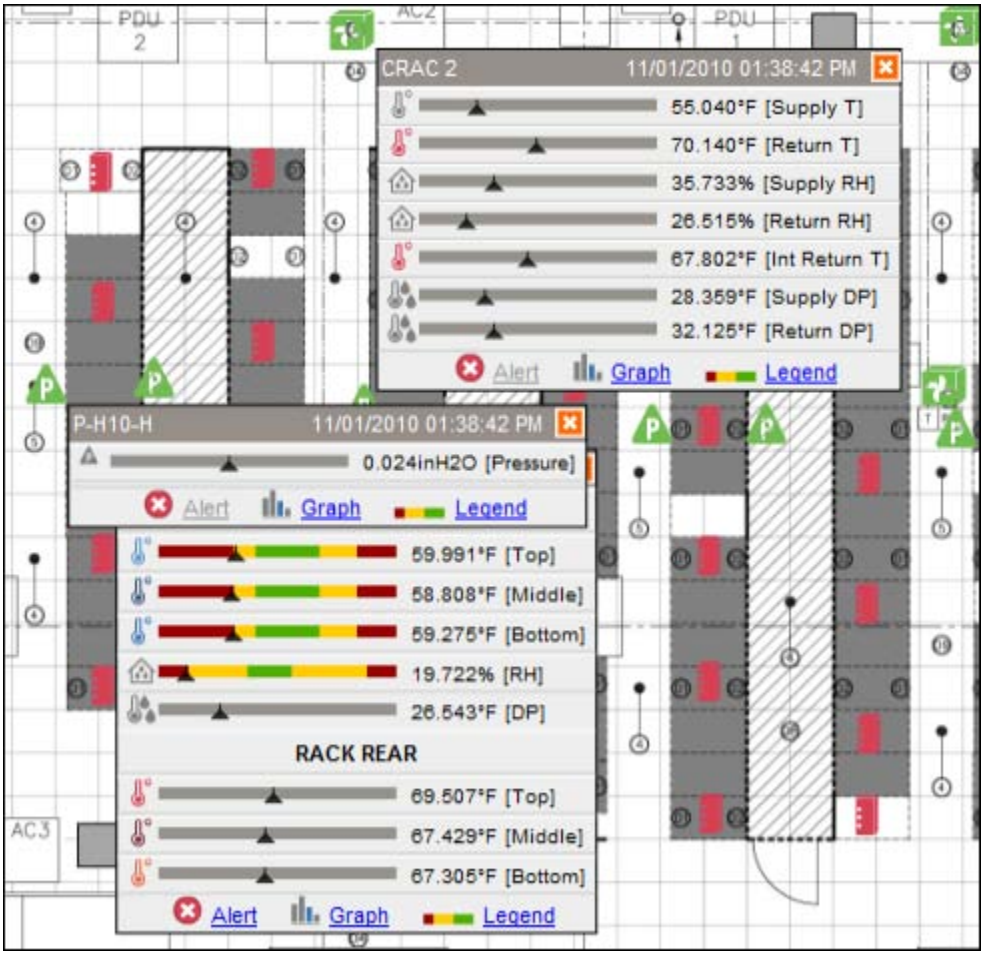
The Observer enables you to view real-time data values for all base stations, racks, pressure objects, CRAH/CRACs, and supported power meters. The data values shown are current readings for all sensors associated with a particular object.

To make viewing the values easier, you can show one type of object icon at a time on the Overview tab. For more information about filtering objects, see Filtering visible objects (on page 22).

To keep multiple data values visible:

1. Click a sensor icon. The data values window remains open.
2. Continue clicking additional sensor icons to keep multiple data value windows open simultaneously.

> **NOTE:** If you have multiple configuration details open, the most recently clicked sensor moves to the front.



3. To briefly the display the data values for objects, move the mouse over other object icons without clicking.

The title bar of each window bears the name of the base station, rack, or CRAH/CRAC to which the values are associated, and a date and time stamp appears in the window title. While a data value window remains open, you can use the mouse to drag it away from and back to the object icon of origin as needed to adjust the view of other icons and data on the page.

The base station toolbar

The base station toolbar displays real-time and historical data for sensor readings at the selected base station.

The following table describes the icons on the toolbar.

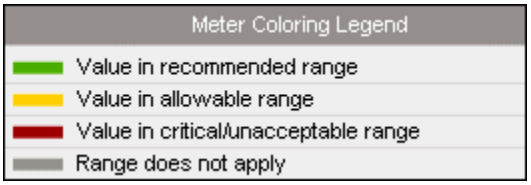
Sensor object	Icon	Description
Base station	Pending alert	An alert is pending on this base station
Base station	Temperature	The temperature in degrees Fahrenheit or Celsius recorded by the sensor for the corresponding base station
Base station	Humidity	The relative humidity as a percentage recorded by the sensor for this base station
Base station	Pressure differential	The differential pressure, typically for a subfloor plenum, across the pressure sensor base station in either inches or Pascals

Sensor object	Icon	Description
Base station	Historical chart	A chart that displays historical data for the base station
Rack	Cold side sensor value	The temperature and dew point recorded by the sensors at the front of the rack
Rack	Hot side sensor value	The temperature and dew point recorded by the sensors at the rear of the rack
Rack	Calculated values	The humidity and reference temperature of the rack
Rack	Historical chart	A chart that displays historical data for the rack
CRAH/CRAC	Supply temperature	The temperature recorded by the sensor monitoring the air supply leaving the CRAH/CRAC
CRAH/CRAC	Return temperature	The temperature recorded by the sensor monitoring the air supply returning to the CRAH/CRAC
CRAH/CRAC	Historical chart	A chart that displays historical data for the CRAH/CRAC

Only icons that apply to the selected base station appear. For example, if an alert is active on the selected base station a Pending alert on appears on the toolbar. Selecting this icon displays the Active Alerts tab. For more information about active alerts, see Active Alerts tab (on page 51).

NOTE: Before you can delete a base station, you must disassociate any alerts associated with the base station. To do this, you must use the HP Insight Environmental Configurator software.

Meters with no color bands indicate that there are no existing ASHRAE recommended ranges for those readings. Base station meters have no color bands. Only rack and CRAC/CRAH object gauges have color bands, explained by the coloring legend.

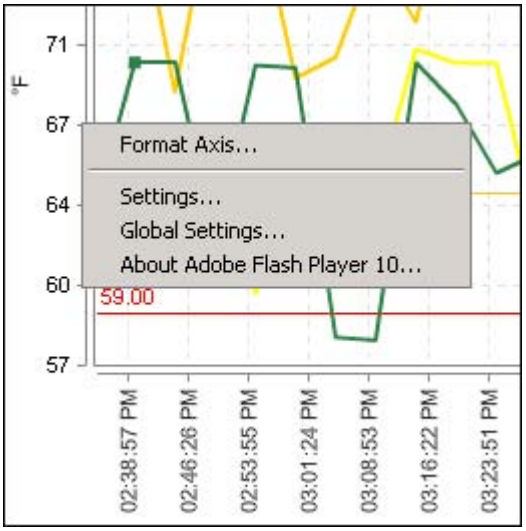


Select **Graph** to display a chart showing recent history for each sensor associated with the selected base station.

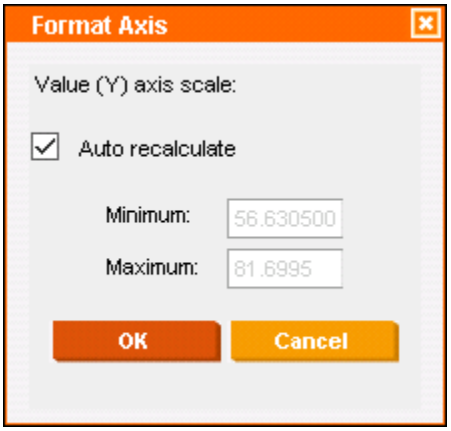
To display the chart for each sensor, use the scroll bar to the right of the window.

To adjust the chart axis lines:

1. Right-click the axis line.

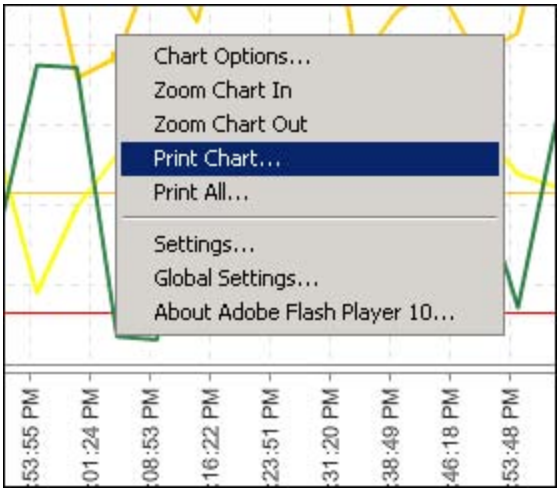


2. Select **Format Axis**. The Format Axis window appears.



3. Either manually adjust the axis scale or select the Auto Recalculate box.
4. Select **OK** to save and close, or select **Cancel** to close without saving.

To print the chart, right-click the chart, and select **Print.** The chart prints to your default printer.



Detecting disconnected sensors

NOTE: If the base station is attempting to communicate with the gateway, the base station status might appear green, though the external sensors are disconnected.

If external sensors have become disconnected from a sensor object, the following indicators appear.

Icon	Status and meaning	Location
	Normal—The device sensors are in normal operating mode.	• The zone in the Navigation panel • The icon on the Overview tab
	Warning—The device sensors are disconnected or are not communicating.	• The zone in the Navigation panel • The icon on the Overview tab

Icon	Status and meaning	Location
	Critical—The device sensors are reporting data values in critical range.	• The zone in the Navigation panel • The icon on the Overview tab • The object data value window

If you notice a disconnected sensor indicated in any location, notify an administrator immediately.

Detecting sensors that require maintenance

Many external sensors require periodic maintenance in accordance with manufacturer guidelines.

If a sensor is disconnected or requires maintenance, a yellow ! appears in the following locations:

- The object data value window
- The zone in the Navigation panel
- The icon on the Overview tab

If you notice a sensor indicates required maintenance in any location, notify an administrator immediately.

Imaging tab

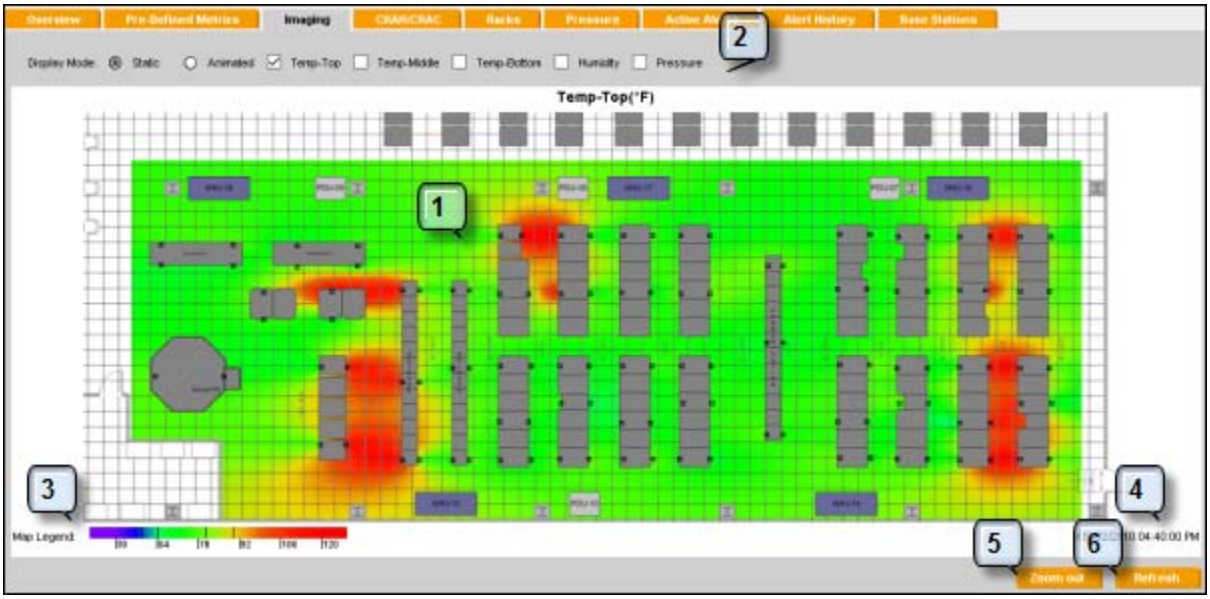
The Imaging tab provides the following options for viewing zone information:

- Static—A color-coded map of each zone in the data center that depicts the current temperature, humidity, or air pressure distribution
- Animated—The distribution map that depicts the changes of the specified sensors as a sequenced flow within a specified date range

Accessing the Imaging tab

1. From the Navigation panel, select the data center or zone you want to display.

2. Select the **Imaging** tab. The Imaging window appears.



Callout	Item	Description
1	Virtual map	Enables you to access real-time and historical imaging of temperature, humidity, and pressure distribution.
2	Header	Enables you to choose from available options. Select static or animated imaging and the specific sensor types and date ranges of data to show.
3	Map legend	Enables you to see the status of the zone. The legend is a color-coded key to the areas shown in the Imaging tab. The movie bar displays the status of an animation and enables you to control the animation.
4	Time stamp	Shows the date and time of the static image.
5	Zoom out	Enables you to view several sensor static images simultaneously.
6	Refresh	Updates the imaging with the latest time stamp and corresponding values.

By default, the Imaging tab displays a solid background color. However, a customized Overview layout image is configured during installation. The image provides a spatially accurate and site-specific rendering of the layout. For more information on configuring the background image, see the *HP Insight Environmental Configurator User Guide*.

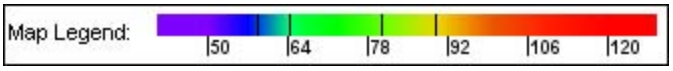
You can switch between the static and animated views. The Observer console calculates sensor data to display in the Imaging tab approximately every 5 minutes.

The Map Legend

The Observer displays one of three different map legends, depending on what type of sensor the user selects from the **Type** list:

- Temperature (Fahrenheit or Celsius)
- Humidity (percentage)
- Pressure (inches of H_20 or Pascals)

The numbers along the bottom indicate the measurements. The colors provide a corresponding visual key.



Display modes

In the Imaging tab, you can view static or animated imaging for the zone selected on the Navigation panel.

Observer shows the location of base station sensors based on x, y, and z coordinates and provides readings for all base stations that can be analyzed based on one or more set of coordinates.

Selecting a temperature sensor type enables you to restrict the Imaging criteria and only show the information for a specific horizontal plane (for example, that of the middle temperature sensor). The application renders the imaging only for that plane.

Viewing static information

1. Select **Static**.

2. Select the sensor-type you want to appear. A color-coded view of all readings for the sensor-type that is currently selected appears.

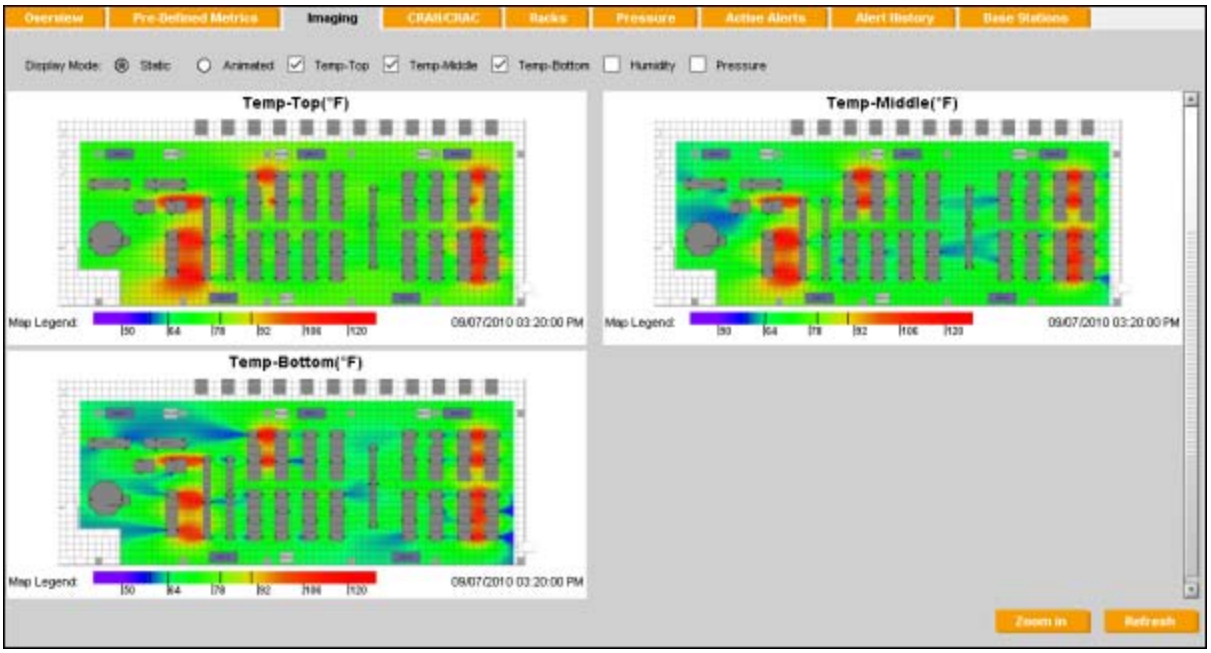
The date and time of the readings from which the image is derived appear in the lower right corner of the window. Click **Refresh** to update the image at any time. The image automatically refreshes every 5 minutes.

The available sensor-types are described in the following table.

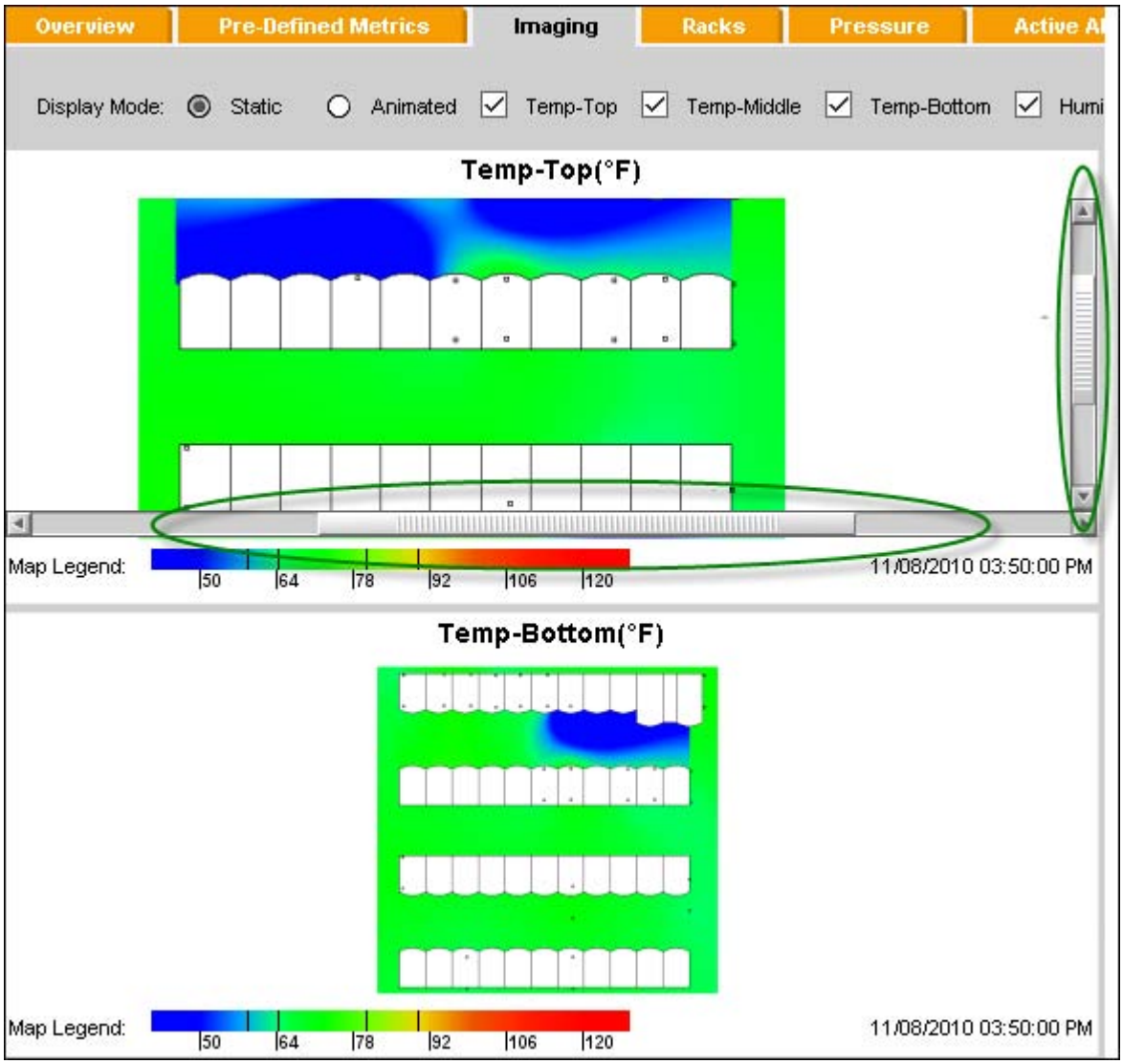
Sensor-type	Description
Temp-Top	The temperature readings for sensors in the top position of the racks within the zone

Sensor-type	Description
Temp-Middle	The temperature readings for sensors in the middle position of the racks within the zone
Temp-Bottom	The temperature readings for sensors in the bottom position of the racks within the zone
Humidity	The relative humidity based on readings from the humidity sensors on racks within the zone
Pressure	The differential air pressure, between the supply plenum and the main floor, based on readings from all pressure objects within the zone

To view static imaging for a different sensor-type, or to select multiple sensor-types to view at one time, select the appropriate boxes. Select **Refresh** to update the view. If more than one sensor-type is selected, you can select the **Zoom out** button to view all static images simultaneously.



If more than one sensor-type is selected and you are zoomed out to view all sensors simultaneously, you can still zoom in on a single sensor-type. Select the box for that sensor type, and then use the scroll feature on your mouse to zoom in or out. The scroll bars appear and show the zoom level.



Right-click any image window for available menu options:

- Select **Print images** to print the image to your default printer.
- Select **Export images** to export the image to the file-type of your choice.

Viewing animated information

1. Select **Animated.**

2. Select the sensor-type you want to appear. A window prompts you to wait while the necessary images load into the animation.
3. Select the date range (up to 30 days) for your animation. The default date represents the last 24 hours.
   a. Open the calendar window for the Start time.
   b. Select the month. Use either the forward or back arrows to change the month, or select the month from the menu.
   c. Select the year from the menu.
   d. Select the day from the calendar view.
   e. Close the calendar window.
   f. Repeat the previous steps for the End time.

4. Select **Refresh** to update the image or to change the animation after changing the sensor-type or date range.

When loading is complete, the application displays a color animation of the distribution of the current readings for the selected sensor type within the specified date range.

The animation plays at the rate of one frame per second, and lasts for a maximum of two minutes. A counter at the lower right provides the currently displayed image, total number of images selected for the animation, and the number of images available for the selected time period. It also displays the progression through the images.

Directly below and to the right of the image of the zone, the time stamps for each captured image appear as that image appears on the screen.

Animation controls appear on the bottom left of the page. As the animation plays, the slider on the progress bar moves to the right to show the progression of frames. When the animation ends, the slider returns to its starting position at the far left.

At any time while the animation is playing, or after it ends, the following animation control options are available:

- Select **Play** to begin the animation or restart the animation.
- Select **Pause** to freeze the animation.
- Select either **Previous** or **Next** to move forward or backward, respectively, in the animation.
- Select **Stop** to halt the animation and return to the first frame in the series.
- Position the mouse over the slider on the progress bar to drag the slider to the right or left. Release the slider to view a particular frame.
- Drag the slider quickly to play the animation quickly.

Pre-Defined Metrics tab

The Pre-Defined Metrics tab provides detailed data on the current state of the selected zone. These metrics were developed in conjunction with the United Stated Department of Energy and Lawrence Berkeley National Labs to reflect the important aspects of the data center and provide information on the efficiency of the data center operations.

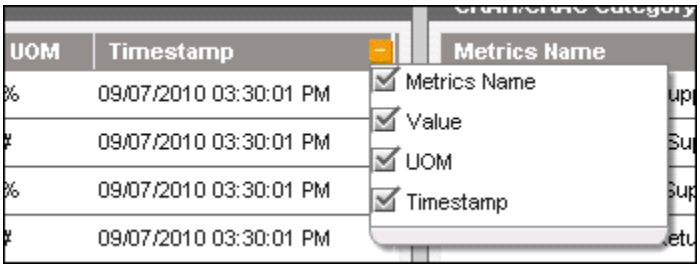
This information can be used to compare the effects of changes and help to improve overall efficiency. For more information, see Pre- defined metric definitions ("Pre-defined metric definitions" on page 37).

Accessing the Pre-Defined Metrics tab

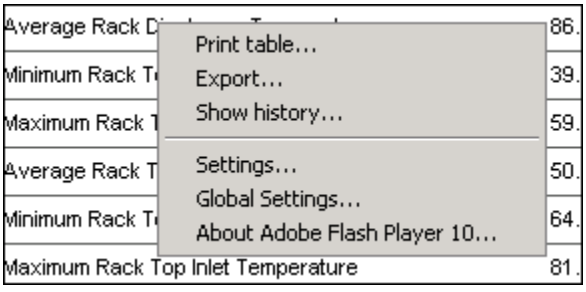
1. From the Navigation panel, select the data center or zone you want to display.
2. Select the **Pre-Defined Metrics** tab. A tabular view of all calculated metric information appears in two categories (Rack and CRAH/CRAC).

DataCenter: Comm and Storage
Overview
Pre-Defined Metrics
Imaging
CRAH/CRAC
Racks
Pressure
Active Alerts
Alert History
Base Stations
Rack Category
Metrics Name
Value
UOM
Timestamp
RCI(HI)™ 100.00 % 09/07/2010 03:30:01 PM
RCI(HI)™ Inlet Measurement Count 0.00 # 09/07/2010 03:30:01 PM
RCI(LO)™ 92.77 % 09/07/2010 03:30:01 PM
RCI(LO)™ Inlet Measurement Count 0.00 # 09/07/2010 03:30:01 PM
Average Rack Inlet Temperature 67.79 °F 09/07/2010 03:30:00 PM
Average Rack Discharge Temperature 86.09 °F 09/07/2010 03:30:00 PM
Minimum Rack Top Inlet Dew Point 39.05 °F 09/07/2010 03:30:00 PM
Maximum Rack Top Inlet Dew Point 59.18 °F 09/07/2010 03:30:00 PM
Average Rack Top Inlet Dew Point 50.11 °F 09/07/2010 03:30:00 PM
Minimum Rack Top Inlet Temperature 64.07 °F 09/07/2010 03:30:00 PM
Maximum Rack Top Inlet Temperature 81.12 °F 09/07/2010 03:30:00 PM
Average Rack Top Inlet Temperature 74.71 °F 09/07/2010 03:30:00 PM
Minimum Front Top Inlet Rate Of Change 7.89 °F 09/07/2010 03:30:01 PM
Maximum Front Top Inlet Rate Of Change 12.46 °F 09/07/2010 03:30:01 PM
Average Front Top Inlet Rate Of Change 11.62 °F 09/07/2010 03:30:01 PM
CRAH/CRAC Category
Metrics Name
Value
UOM
Timestamp
Minimum CRAH/CRAC Supply Temperature 49.05 °F 09/07/2010 03:30:00 PM
Maximum CRAH/CRAC Supply Temperature 70.25 °F 09/07/2010 03:30:00 PM
Average CRAH/CRAC Supply Temperature 59.96 °F 09/07/2010 03:30:00 PM
Minimum CRAH/CRAC Return Temperature 67.03 °F 09/07/2010 03:30:00 PM
Maximum CRAH/CRAC Return Temperature 75.44 °F 09/07/2010 03:30:00 PM
Average CRAH/CRAC Return Temperature 70.06 °F 09/07/2010 03:30:00 PM
Minimum CRAH/CRAC Supply Dew Point 27.01 °F 09/07/2010 03:30:00 PM
Maximum CRAH/CRAC Supply Dew Point 46.17 °F 09/07/2010 03:30:00 PM
Average CRAH/CRAC Supply Dew Point 36.88 °F 09/07/2010 03:30:00 PM
Minimum CRAH/CRAC Return Dew Point 43.26 °F 09/07/2010 03:30:00 PM
Maximum CRAH/CRAC Return Dew Point 50.85 °F 09/07/2010 03:30:00 PM
Average CRAH/CRAC Return Dew Point 45.99 °F 09/07/2010 03:30:00 PM
Minimum CRAH/CRAC Delta Temp 0.75 °F 09/07/2010 03:30:00 PM
Maximum CRAH/CRAC Delta Temp 12.63 °F 09/07/2010 03:30:00 PM
Average CRAH/CRAC Delta Temp 5.20 °F 09/07/2010 03:30:00 PM

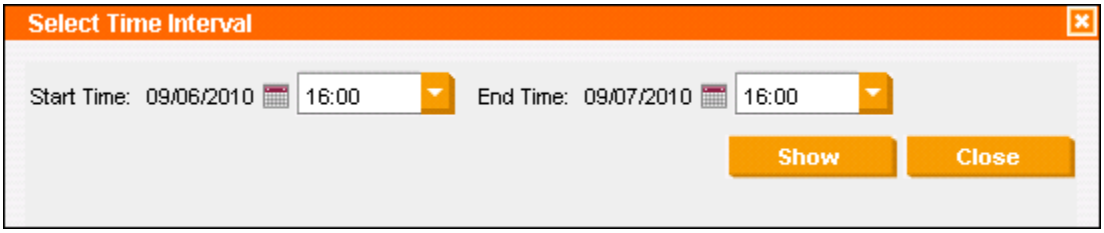
Select the + to select all of the columns you want to view for that category.



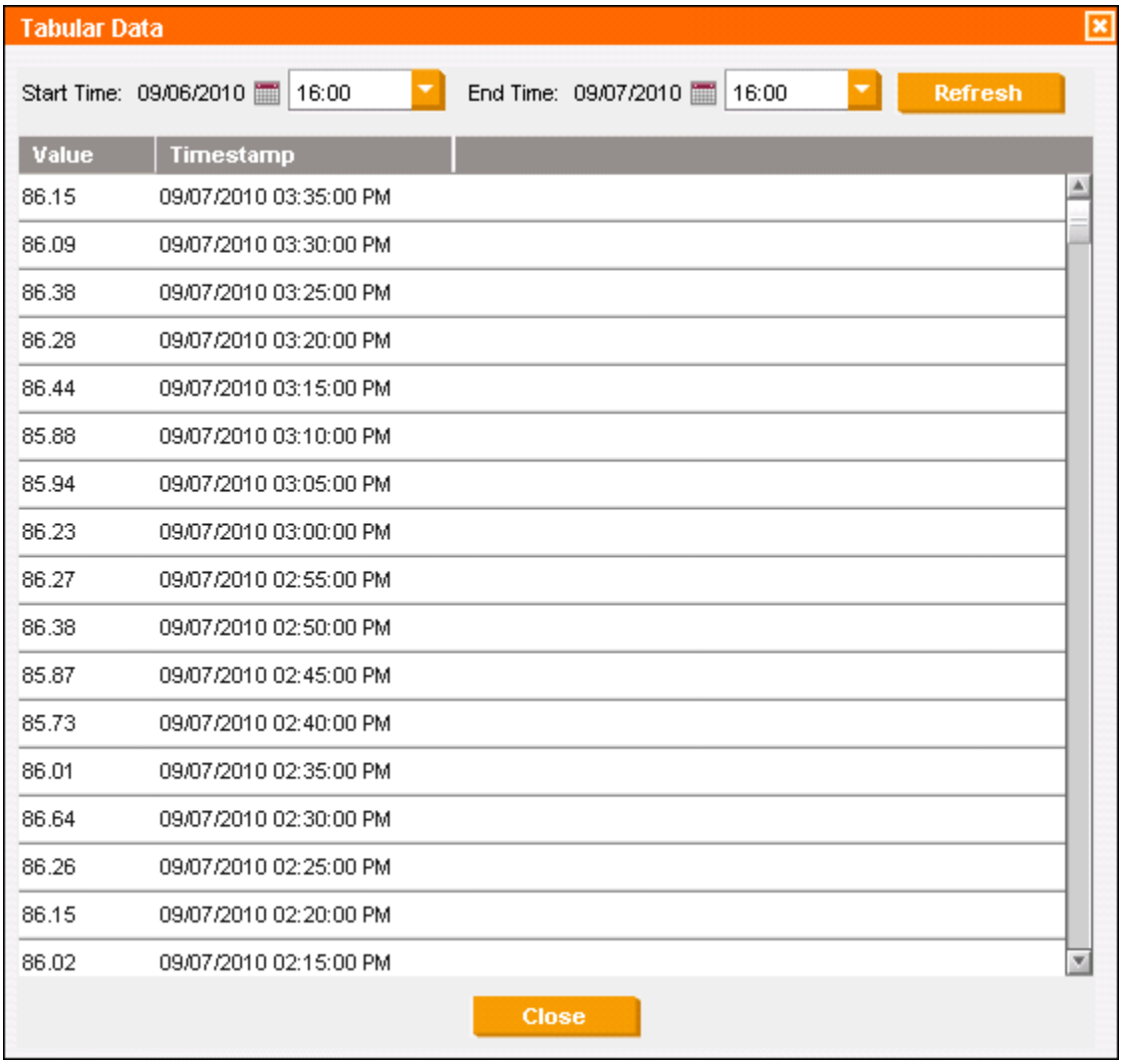
3. Right-click any metric row. The options window appears.



4. Select the operation you want to perform.
   - Select **Print table** to print the entire table to your default printer.
   - Select **Export** to export the information to the file-type of your choice.
   - Select **Show history** to display all metric values calculated within a certain time frame.



The history for a specific metric measurement is shown in a table.



Pre-defined metric definitions

Metric	Affected objects	Description
Rack Cooling Index$_{HI}$®	Data center racks Zone racks	The measure of the absence of over-temperatures. 100% means that no over-temperatures exist. The lower the percentage, the

Metric	Affected objects	Description
		greater the possibility that the equipment experiences temperatures above the maximum allowable temperature, as determined by ASHRAE.
Rack Cooling Index$_{LO}^{®}$	Data center racks Zone racks	RCI$_{LO}^{TM/SM}$ is the complement to RCI$_{HI}^{TM/SM}$ to draw attention to the supply air that is below the minimum recommended temperature, as determined by ASHRAE.
RCI$_{HI}^{®}$/RCI$_{LO}^{®}$ Inlet Measurement Count	Data center racks Zone racks	The number of racks that have RCI$_{HI}^{TM/SM}$ or RCI$_{LO}^{TM/SM}$ measurements
Average Rack Inlet Temperature	Zone racks	The average of the top, middle, and bottom rack inlet temperature sensors on each rack for each zone
Average Rack Discharge Temperature	Zone racks	The average of the top, middle, and bottom rack discharge temperature sensors on each rack for each zone
Min, Max, Average Rack Top Inlet Dew Point	Data center racks Zone racks	Dew point calculated at the top inlet on each rack for each zone
Min, Max, Average Rack Cold Top Inlet Air Temp Rate of Change	Data center racks Zone racks	Rack top inlet temperature degrees change per hour, for each zone
Min, Max, Average CRAC supply temperature	CRAH/CRAC Zone	Supply temperatures calculated for each zone
Min, Max, Average CRAC return temperature	CRAH/CRAC Zone	Return temperatures calculated for each zone
Min, Max, Average CRAC supply dew point temperature	CRAH/CRAC Zone	Dew point temperatures for supply air for each zone
Min, Max, Average CRAC return dew point temperature	CRAH/CRAC Zone	Dew point temperatures for return air for each zone

Custom Metrics tab

The Custom Metrics tab only appears at the data center level, if you have defined and configured custom calculation inspectors in the HP Insight Environmental Configurator. For more information, see the *HP Insight Environmental Configurator User Guide*.

The Custom Metrics tab displays:

- All data inspectors configured for the data center
- Historical data for the monitored calculation groups

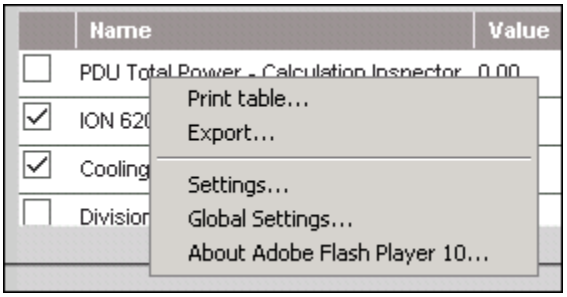
Accessing the Custom Metrics tab

1. From the Navigation panel, select the data center you want to display.

2. If you have configured custom data inspectors, then select the **Custom Metrics** tab. The Custom Metrics window appears.

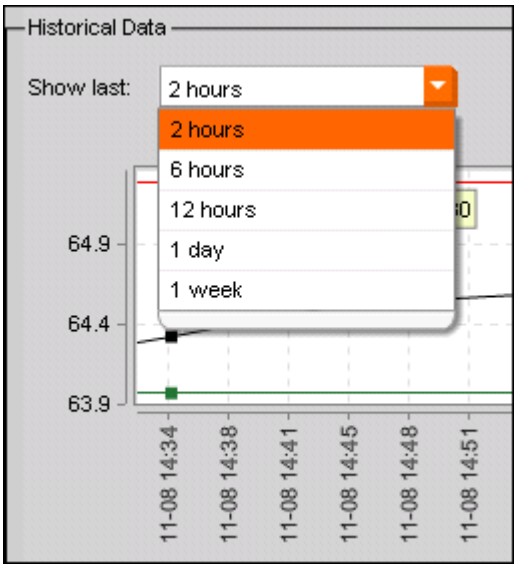
3. In the Data Inspectors section, click the down arrow to select the filter for the historical data chart.

4. Right-click any row. The options window appears.

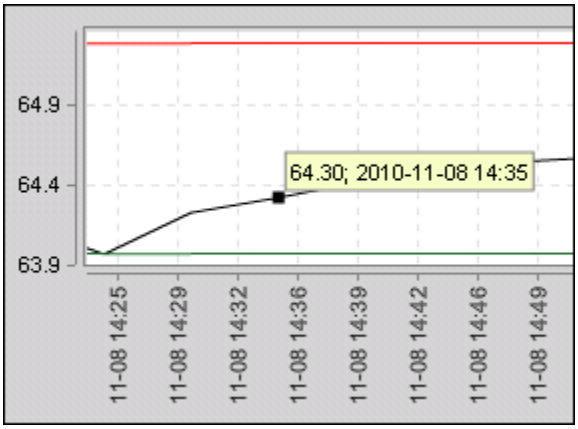


5. Select the operation you want to perform.
   - Select **Print table** to print the entire table to your default printer.
   - Select **Export** to export the information to the file-type of your choice.

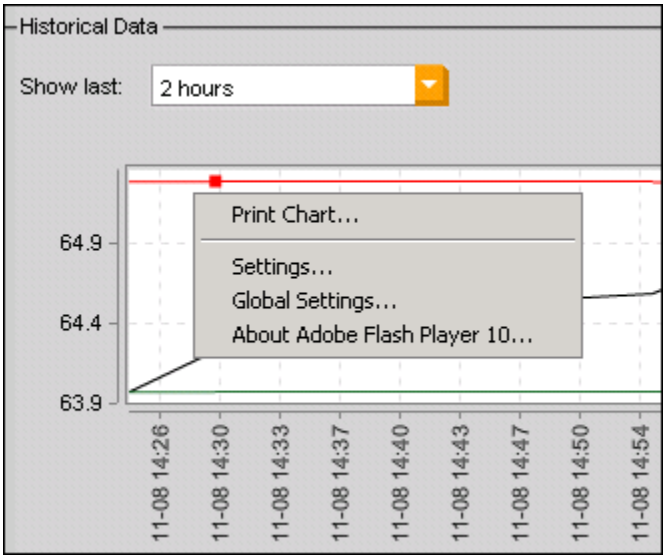
6. In the Historical Data section, click the down arrow to select the time interval for the historical data graph.



7. Scroll over any point on the graph to display the data.



8. Right-click anywhere in the graph. The options window appears.



   - Select **Print Chart** to print the entire graph.

9. Select **Refresh** at anytime to update the data and graph.

Tabular views

You can view data in tabular form. Columns in the tables show detailed data for all base stations, racks, pressure objects, and CRAH/CRACs in the zone selected on the Navigation panel. You can sort and edit columns. For more information about columns, see Changing the appearance of columns (on page 13).

Accessing the Tabular views

1. From the Navigation panel, select the data center or zone you want to display.
2. Select one of the following tabs:
   - CRAH/CRAC
   - Racks
   - Pressure
   - Power Meters
   - Active Alerts
   - Alert History
   - Base Stations

   The information for the selected data center or zone and the selected tab appears in a tabular or detailed list format.

Sensor object tabs

The following sensor object tabs might appear in your selected zone, depending on whether the objects are installed in that zone:

- CRAH/CRAC
- Racks
- Pressure
- Power Meters
- Base Stations

The following table describes the information that appears for each sensor object in the Tabular view.

Column	Description
Status icons	Icons, in green, yellow, or red indicate the status of the base station. See Status icons for more information.
Name	The name of the sensor object. If the object is not configured, the device ID appears.
Sensor type	Icons representing each sensor type that is connected to the sensor object.
Values	The current reading for sensors connected to the base station.*
Timestamp	The date and time of the latest sensor reading.

Column	Description
Location	The location of the sensor object, as entered during configuration.

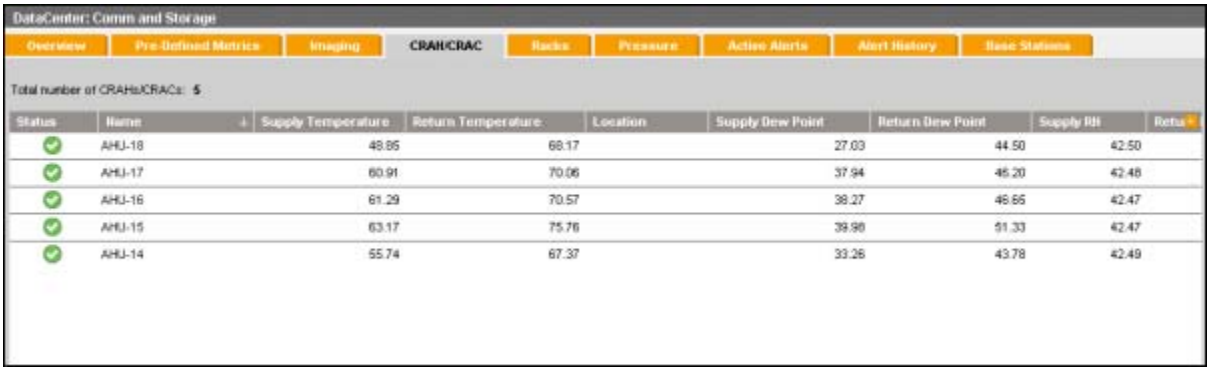
*If an external sensor is disconnected, then a red X appears in the sensor column. If a sensor needs maintenance, then a yellow X appears in the sensor column.

CRAH/CRAC tab

To view the CRAH/CRAC details for a specific zone:

1. From the Navigation panel, select the zone you want to display.
2. Select the **CRAH/CRAC** tab. The information for all CRAH/CRACs within that zone appears in the Tabular view.

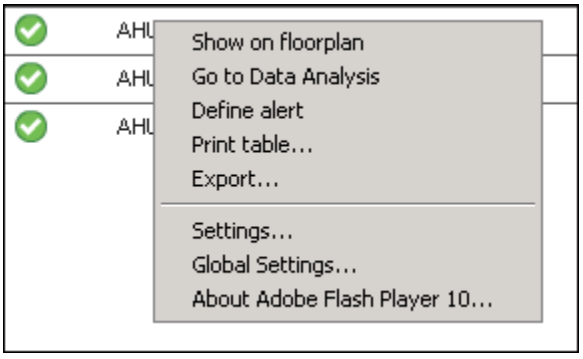
NOTE: You can sort, resize, move, or hide columns. For more information about the appearance of columns, see Changing the appearance of columns (on page 13).



NOTE: If the system is collecting data from the sensors but cannot calculate a value, the CRAH/CRAC or rack objects might have a yellow status. This temporary situation is typically encountered during the installation process.

The header display area specifies the total number of CRAH/CRACs in the zone. The main display shows data, including status, name, location, and recent readings for each CRAH/CRAC, organized into columns.

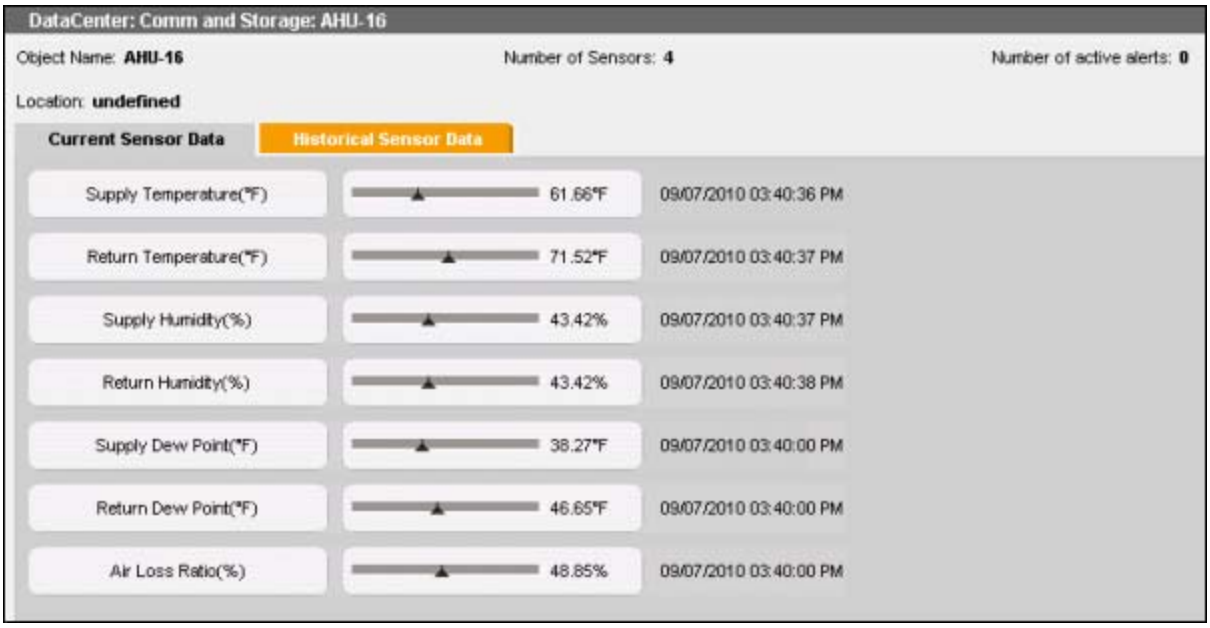
3. Right-click the CRAH/CRAC you want to view. The options window appears.



- Select **Show on floorplan** to locate the CRAH/CRAC on your zone floorplan view.
- Select **Go to Data Analysis** to open the Data Analysis window and highlight the selected CRAH/CRAC for reporting.

- Select **Define alert** to open the Define New Alert window and select the CRAH/CRAC as the source of the data for the alert.
- Select **Print table** to print to your default printer.
- Select **Export** to export the information to the file-type of your choice.

4. Select an individual CRAH/CRAC to display the current and historical data associated with that CRAH/CRAC.

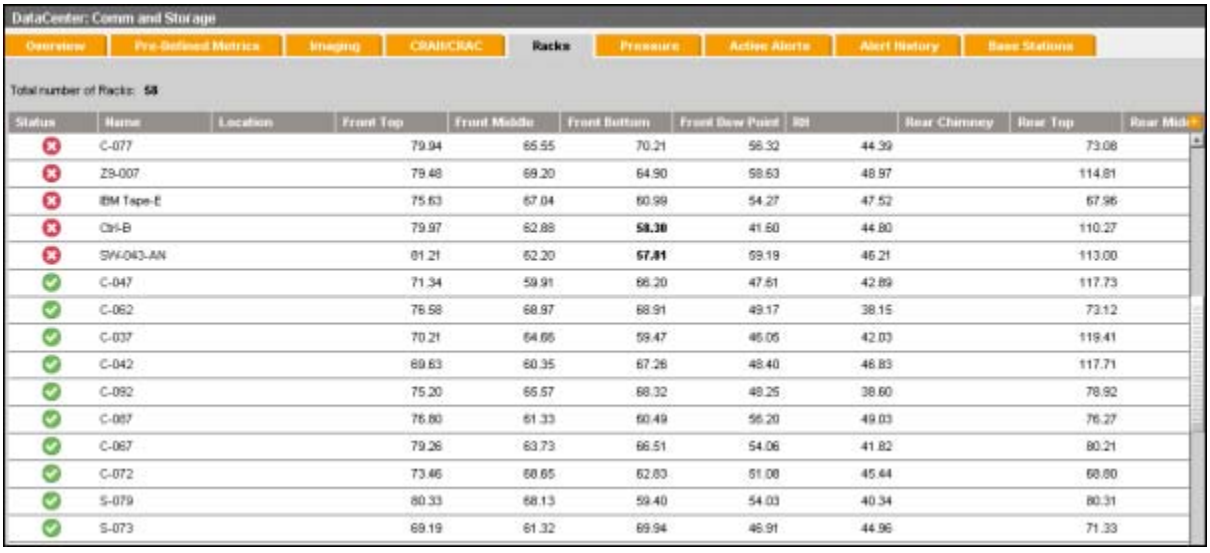


Racks tab

To view the rack details for a specific zone:

1. From the Navigation panel, select the zone you want to display.
2. Select the **Racks** tab. The information for all racks within that zone appears in the Tabular view.

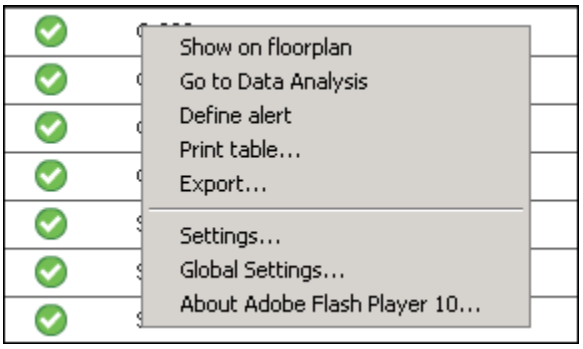
NOTE: You can sort, resize, move, or hide columns. For more information about the appearance of columns, see Changing the appearance of columns (on page 13).



NOTE: If the system is collecting data from the sensors but cannot calculate a value, the CRAH/CRAC or rack objects might have a yellow status. This temporary situation is typically encountered during the installation process.

The header display area specifies the total number of racks in the zone and the number of active alerts, if any. The main display shows data, including the status, name, location, and recent readings for each rack, organized into columns.

3. Right-click the rack you want to view. The options window appears.



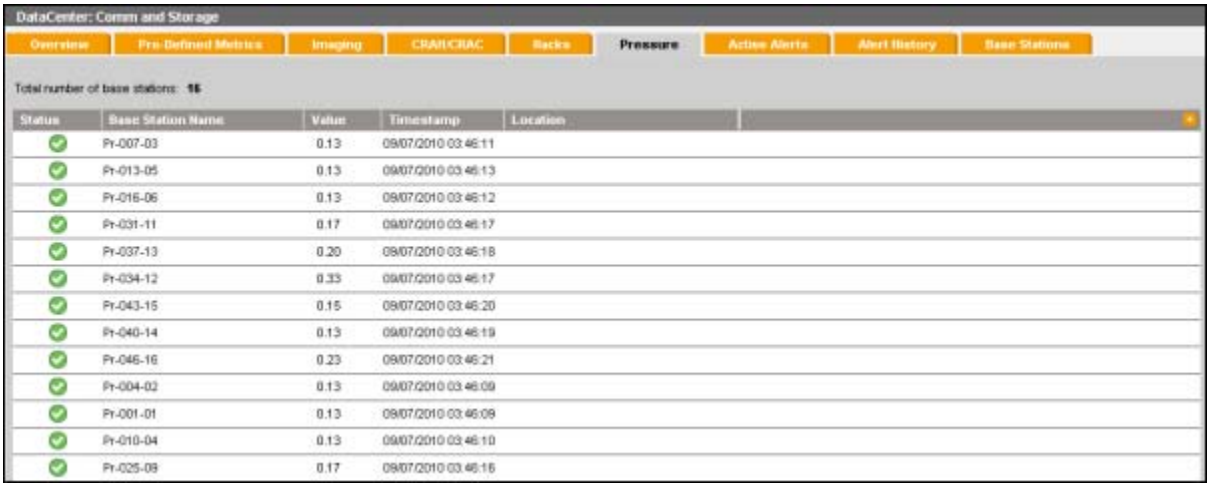
- Select **Show on floorplan** to locate the rack on your zone floorplan view.
- Select **Go to Data Analysis** to open the Data Analysis window and highlight the selected rack for reporting.
- Select **Define alert** to open the Define New Alert window and select the rack as the source of data for the alert.
- Select **Print table** to print to your default printer.
- Select **Export** to export the information to the file type and location of your choice.

Pressure tab

To view the pressure object details for a specific zone:

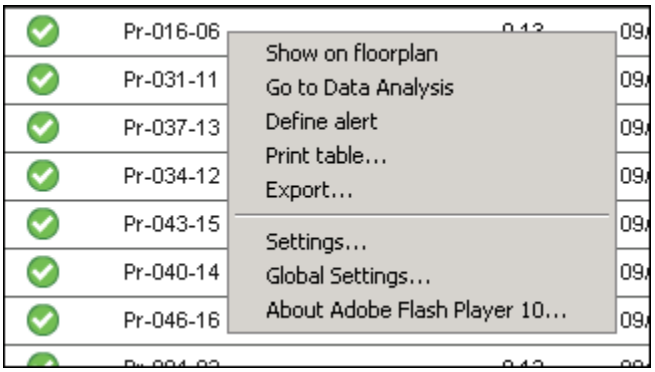
1. From the Navigation panel, select the zone you want to display.
2. Select the **Pressure** tab. The information for all pressure objects within that zone appears in the Tabular view.

NOTE: You can sort, resize, move, or hide columns. For more information about the appearance of columns, see Changing the appearance of columns (on page 13).



The header display area specifies the total number of pressure sensors in the zone and the number of active alerts, if any. The main display shows data, including status, name, location, and recent readings for each pressure object, organized into columns.

3. Right-click the pressure object you want to view. The options window appears.



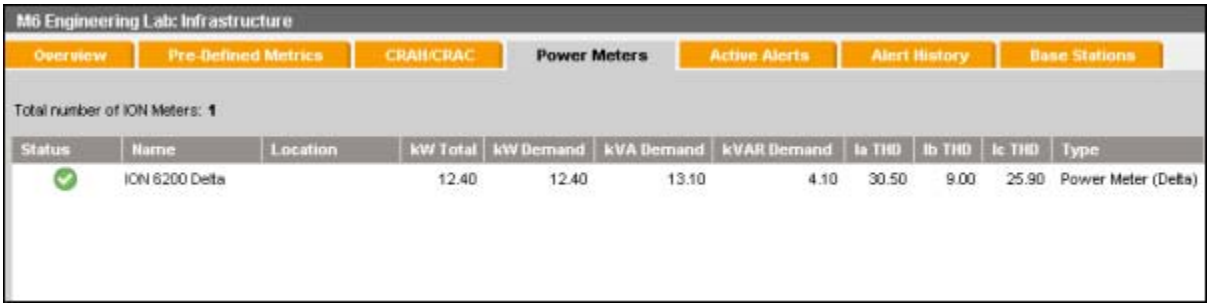
- Select **Show on floorplan** to locate the pressure object on your zone floorplan view.
- Select **Go to Data Analysis** to open the Data Analysis window and highlight the selected pressure object for reporting.
- Select **Define alert** to open the Define New Alert window and select the pressure object as the source of the data for the alert.
- Select **Print table** to print to your default printer.
- Select **Export** to export the information to the file-type of your choice.

Power Meters tab

The Power Meters tab only appears if you have a power meter installed and configured in that zone. To view the power meter object details for a specific zone:

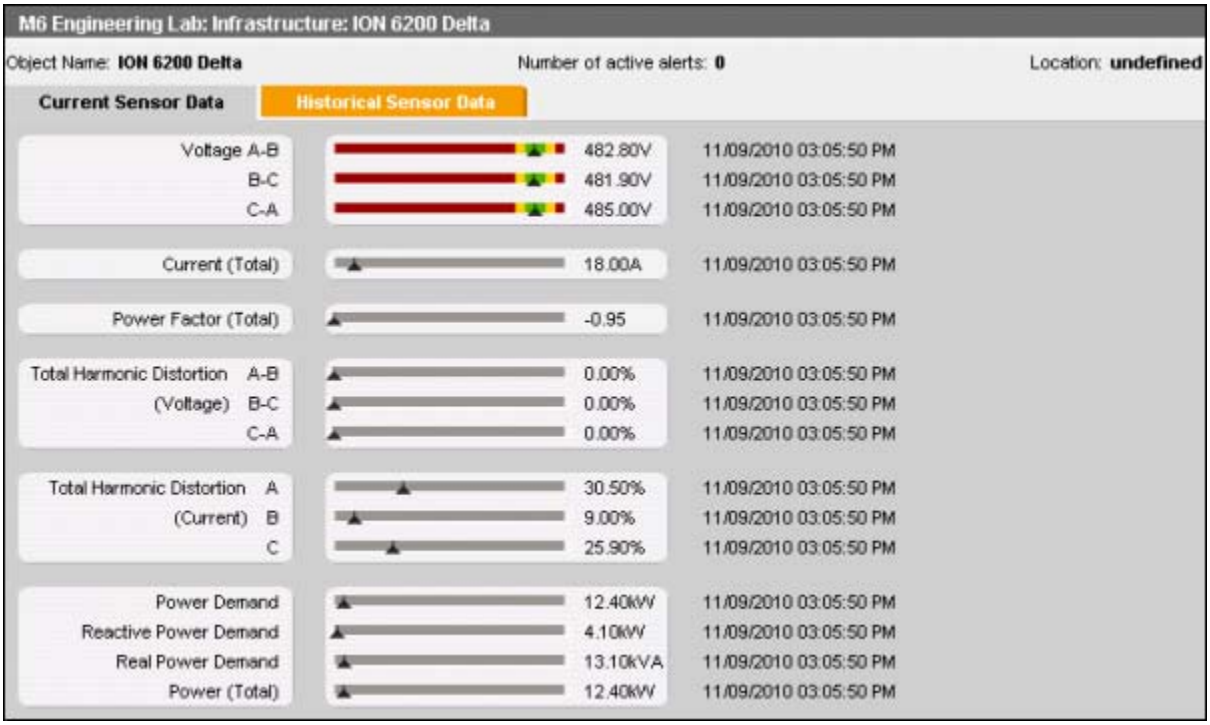
1. From the Navigation panel, select the zone you want to display.
2. Select the **Power Meters** tab. The information for all power meters within that zone appears in the Tabular view.

NOTE: You can sort, resize, move, or hide columns. For more information about the appearance of columns, see Changing the appearance of columns (on page 13).

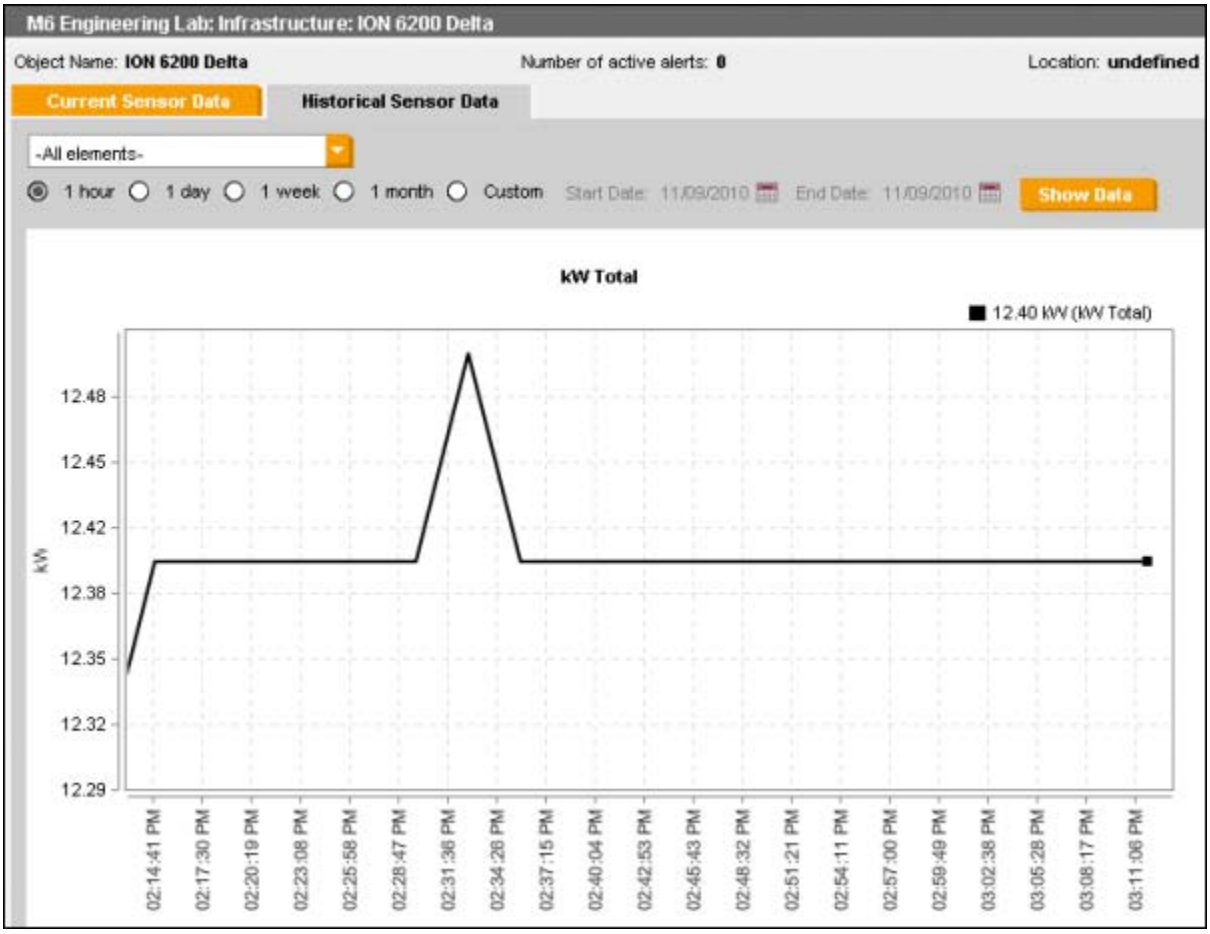


The header display area specifies the total number of power meters in the zone and the number of active alerts, if any. The main display shows data, including the status, name, location, and recent readings for each power meter, organized into columns.

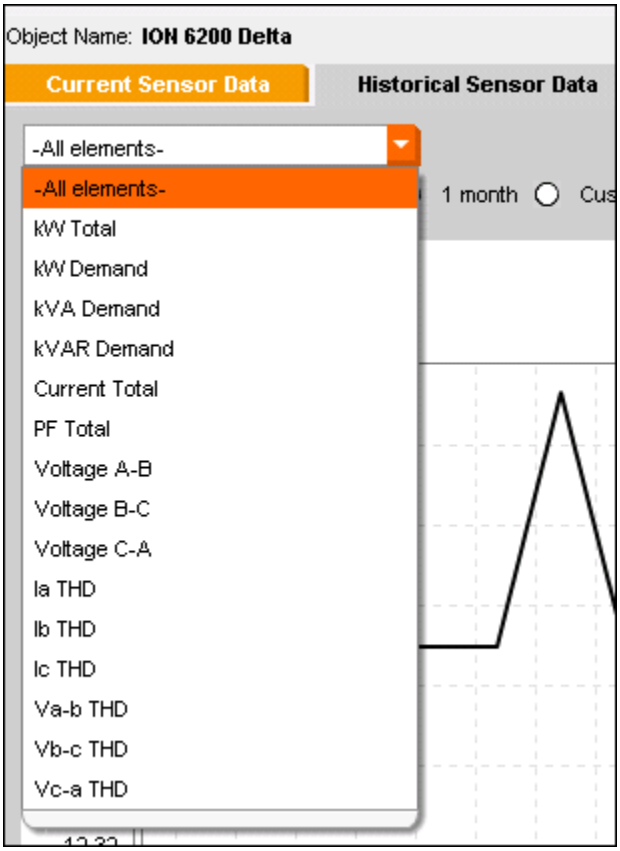
3. Select any power meter you want to view. The current and historical sensor data appears. The Current Sensor Data tab is the default.



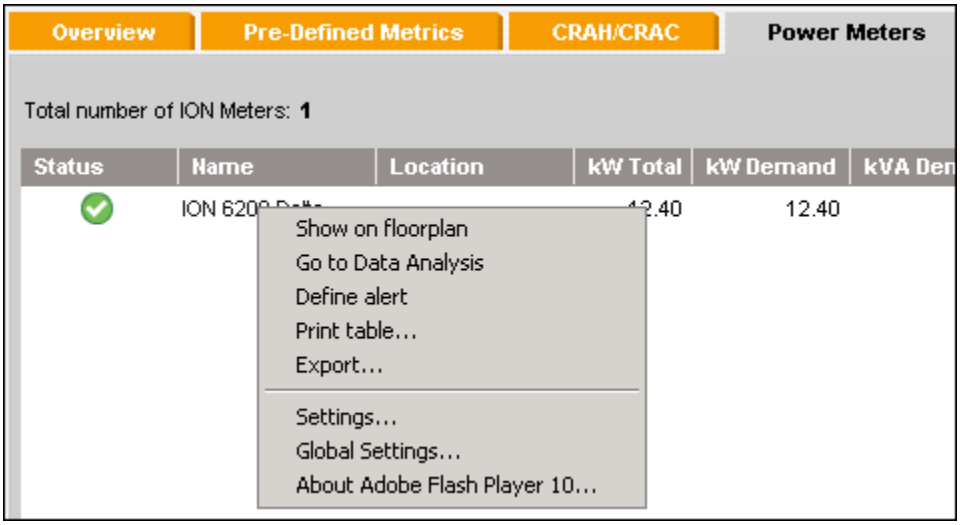
4. Select the Historical Sensor Data tab to view past sensor data.



5. Filter sensor data, if desired.



6. Right-click the power meter object. The options window appears.



- Select **Show on floorplan** to locate the power meter on your zone floorplan view.
- Select **Go to Data Analysis** to open the Data Analysis window, and highlight the selected power meter for reporting.
- Select **Define Alert** to open the Define New Alert window, and select the power meter as the source of data for the alert.
- Select **Print table** to print to your default printer.
- Select **Export** to export the information to the file type and location of your choice.

Base Station tab

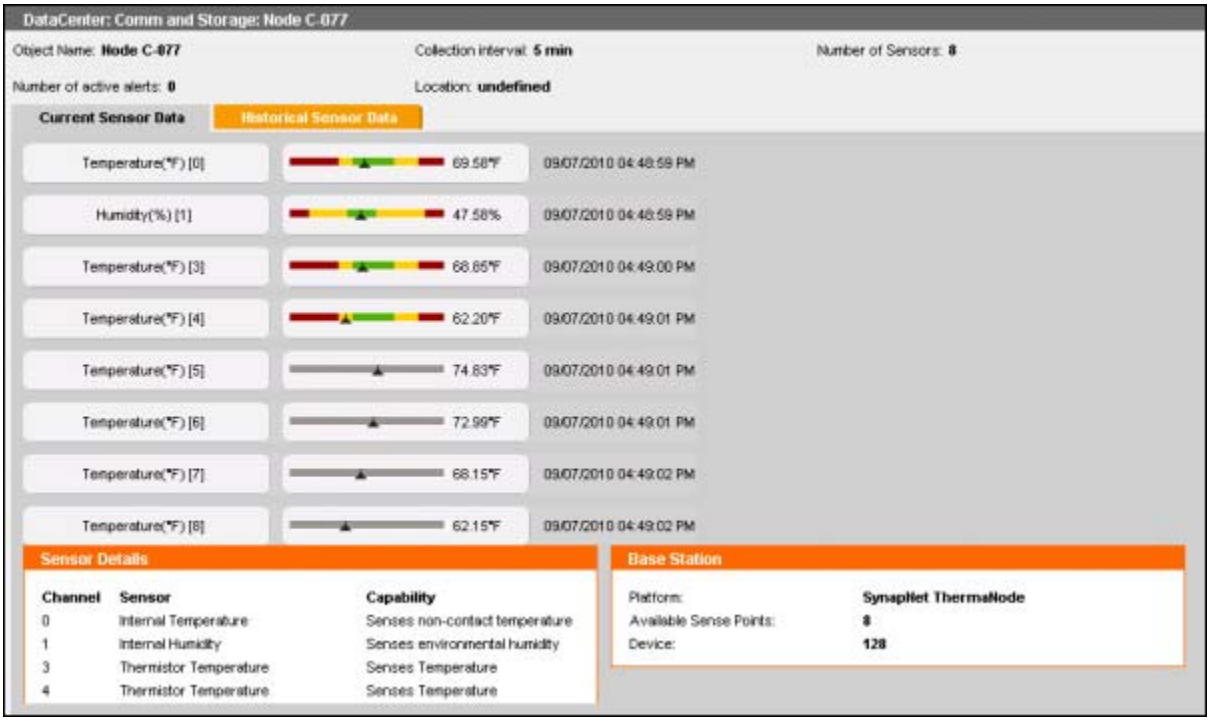
To view the wireless base station details for a specific zone:

1. From the Navigation panel, select the zone you want to display.
2. Select the **Base Stations** tab. The information for all wireless base stations within that zone appears in the Tabular view.

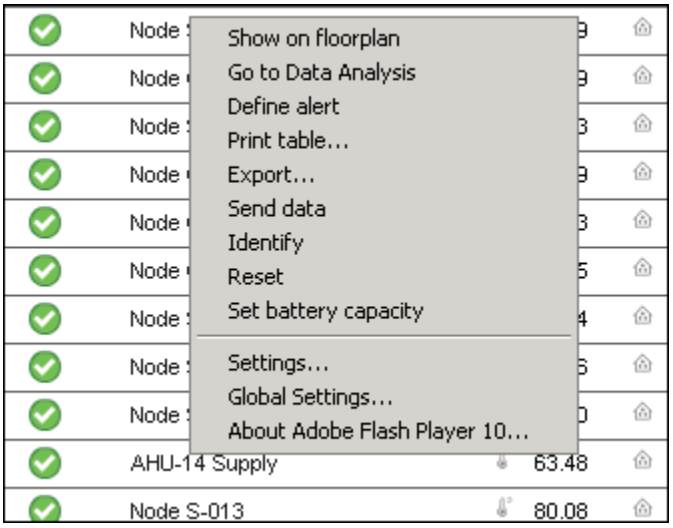
> **NOTE:** You can sort, resize, move, or hide columns. For more information about the appearance of columns, see Changing the appearance of columns (on page 13).

The header display area specifies the total number of wireless base stations in the zone, including all racks, CRAH/CRAC, and pressure objects. The main display shows data, including status, name (or device ID), location, and recent readings for each base station, organized in to columns.

3. Move your mouse over a row to highlight it. Select a row to display all sensor information tied to that wireless base station.


DataCenter: Comm and Storage: Node C-077
Object Name: Node C-077
Collection interval: 5 min
Number of Sensors: 8
Number of active alerts: 0
Location: undefined
Current Sensor Data
Historical Sensor Data
Temperature(°F) [0] 69.58°F 09/07/2010 04:48:59 PM
Humidity(%) [1] 47.58% 09/07/2010 04:48:59 PM
Temperature(°F) [3] 68.85°F 09/07/2010 04:49:00 PM
Temperature(°F) [4] 62.20°F 09/07/2010 04:49:01 PM
Temperature(°F) [5] 74.83°F 09/07/2010 04:49:01 PM
Temperature(°F) [6] 72.99°F 09/07/2010 04:49:01 PM
Temperature(°F) [7] 68.15°F 09/07/2010 04:49:02 PM
Temperature(°F) [8] 62.15°F 09/07/2010 04:49:02 PM
Sensor Details
Channel Sensor Capability
0 Internal Temperature Senses non-contact temperature
1 Internal Humidity Senses environmental humidity
3 Thermistor Temperature Senses Temperature
4 Thermistor Temperature Senses Temperature
Base Station
Platform: SynapNet ThermaNode
Available Sense Points: 8
Device: 128

4. Right-click the base station you want to view. The options window appears.



- Select **Show on floorplan** to locate the wireless base station on your zone floorplan view.
- Select **Go to Data Analysis** to open the Data Analysis window and highlight the selected wireless base station for reporting.
- Select **Define alert** to open the Define New Alert window and select the wireless base station as the source of the data for the alert.
- Select **Print table** to print to your default printer.
- Select **Export** to export the information to the file-type of your choice.
- Select **Send data** to have the wireless base station take a reading from its sensors and immediately send that data to the Observer.
- Select **Identify** to have the selected wireless base station to flash a yellow LED to identify it within the data center.
- Select **Reset** to reset the selected wireless base station. The wireless base station must rejoin the network and establish connection with the gateway before it can send new data.
- Select **Set battery capacity** to reset the battery lifetime for the wireless base station, after you have changed the batteries. For more information about changing batteries, see Changing batteries ("Replacing batteries" on page 103).

Alerts

There are two types of alerts:

- System or Global alerts—These alerts are generated by the application for all data centers installed and are viewable from the Alert menu. For more information, see Alerts menu (on page 68).
- Local alerts—These alerts are generated by the application for a specific data center or zone installed and are viewable from the Active Alerts tab (on page 51) and Alert History tab (on page 52) within the Tabular view of that data center or zone.

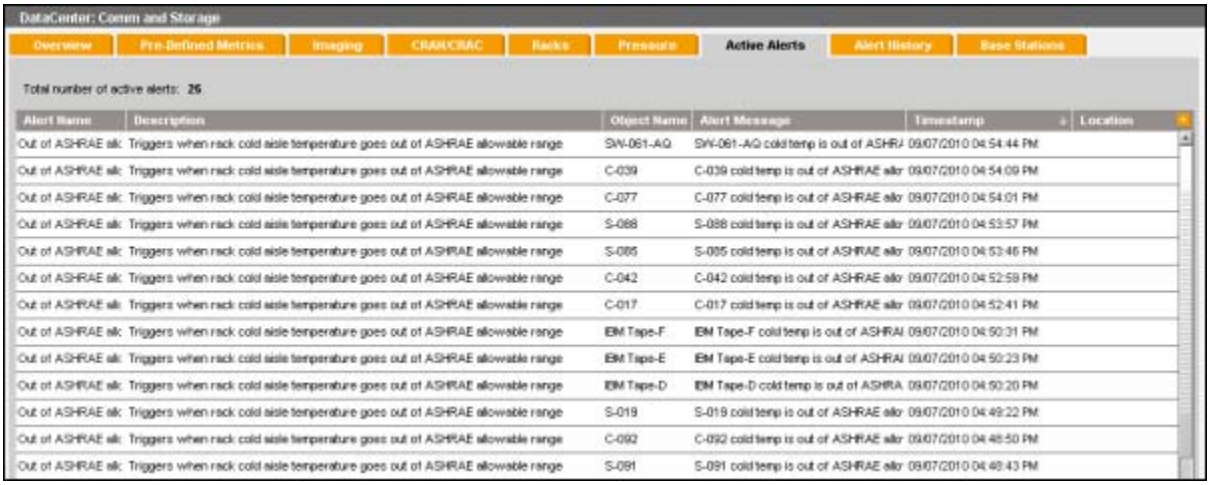
You can view the following local alert options in the Tabular view:

- Active Alerts
- Alert History

Active Alerts tab

To view active alerts for a specific zone:

1. From the Navigation panel, select the zone you want to display.
2. Select the **Active Alerts** tab. The information for active alerts within that zone appears in Tabular view.

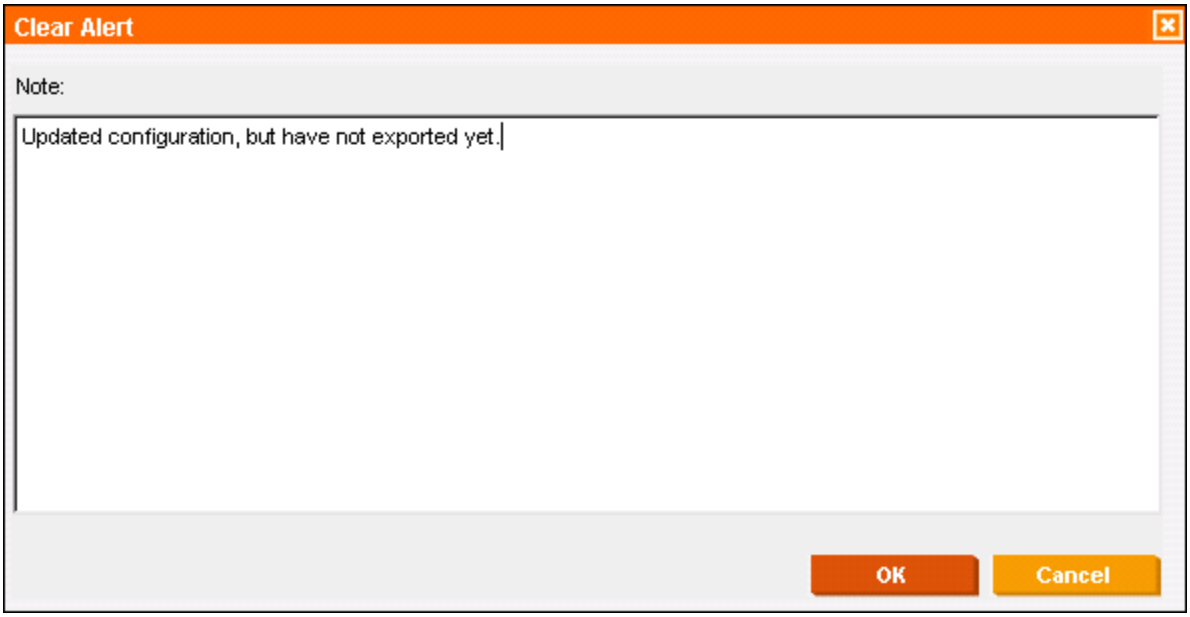


The header display area specifies the number of active alerts. Select the + to select the columns you want to view.

For active alerts, the only action you can perform is to clear them. Select **Clear** to remove the alert from the active alerts list. When an alert is cleared, it is removed from the active alerts list, but is not removed from the Alert History tab.

To clear an alert:

1. Highlight the alert:
   - Single alert
   - Multiple alerts
2. At the bottom right of the window, select **Clear**. The Clear Alert window appears.



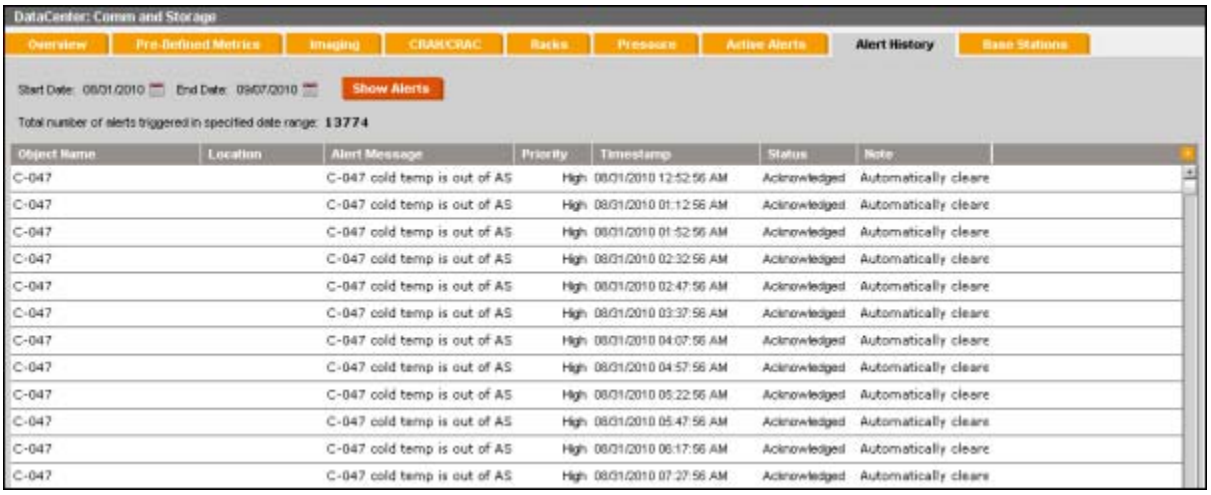
You can add a note regarding the alert or reason for clearing it. Any added note appears with the alert in the Alert History tab.

For more information on clearing alerts, see Alerts menu (on page 68).

Alert History tab

To view the alert history for a specific zone:

1. From the Navigation panel, select the zone you want to display.
2. Select the **Alert History** tab. The information for historical alert data, including previously dismissed alerts, within that zone appears in Tabular view.



The header display area specifies the number of alerts in the selected date range. Select the + to select the columns you want to view.

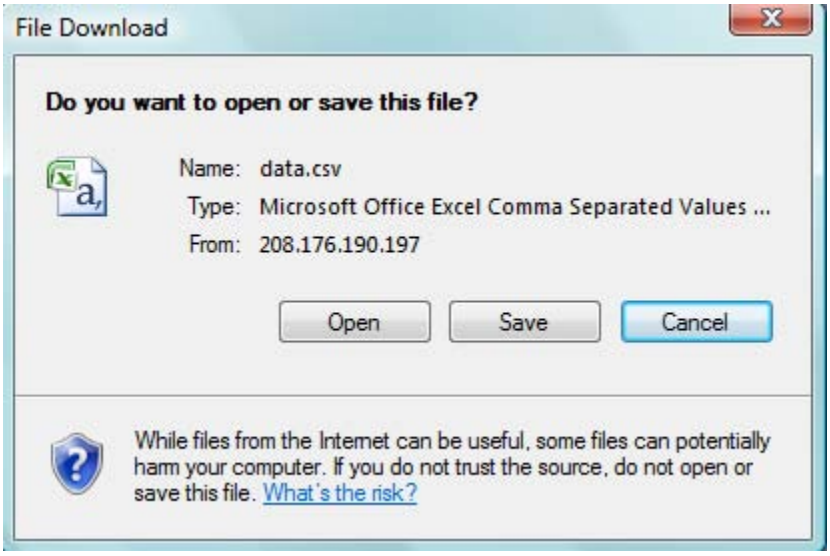
3. Right-click any alert to export or print the alert information. For more information about exporting data, see Exporting tabular data to a .csv file (on page 52).

Exporting tabular data to a .csv file

To export the data:

1. Select the object tab in Tabular view.
2. Right-click the object for the data you want to export.

3. Select **Export.** A window appears prompting you to save the file.


File Download
Do you want to open or save this file?
Name: data.csv
Type: Microsoft Office Excel Comma Separated Values ...
From: 208.176.190.197
Open
Save
Cancel
While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

If you do not see the download window, you might have pop-ups blocked or may need to add the server into your trusted zone to allow file downloads. See your browser documentation for enabling pop-ups.

For detailed information on exporting to this format, see Exporting to CSV format ("Exporting report data to .csv file" on page 67).

Wireless Sensor Network tab

The Wireless Sensor Network tab appears only for administrators who have selected a data center from the Navigation panel.

The view displays the locations of wireless base stations and the wireless communication status and map between the base stations and the gateways. Base stations that are not wireless do not appear.

From the Wireless Sensor Network tab, you can view the following items:

- Total base station count—Displays the total number of base stations deployed within the data center.
- Wireless connectivity—Displays all devices connected and communicating with another device. If a device is shown without a line connected to it, there is no communication for the device.
  - Yellow status—The device has a connectivity problem. A warning is issued.
  - Green status—The device is communicating to the network.
- Visual wireless hops—Displays the number of hops between base stations and gateways. For optimal data transmission time, use a maximum of two hops between each base station and its gateway.
- Wireless traffic balancing—Displays the wireless route lines. Be sure to balance the amount of traffic among gateways.

Accessing the wireless sensor network

1. From the Navigation panel, select the data center you want to display.

2. Select the **Wireless Sensor Network** tab. The Wireless Sensor Network page appears.

Callout	Item	Description
1	Virtual map	Shows the wireless device location on the data center and the wireless communication map.
2	Data center information	Shows all base stations connected to the wireless network and all warnings for the wireless network.
3	Hop level	Shows the number of wireless communication hops between the wireless base station and the gateway.
4	Show wireless routes	Enables you to toggle the display of all wireless routes for all base stations.
5	Zoom slider	Enables you to zoom in or out.
6	Network	Shows the wireless network PAN selected for the data center.
7	Refresh	Enables you to refresh the screen and view all current wireless routes.

Menu bar actions

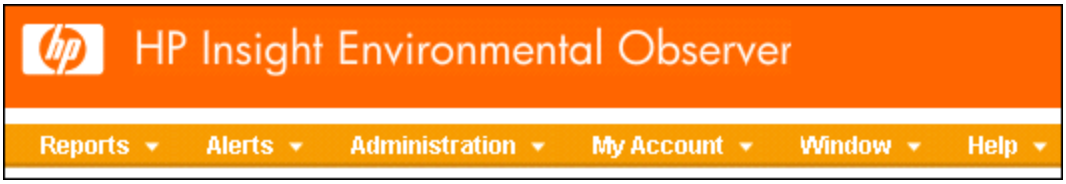
Menu bar options

HP Insight Environmental Observer has the following user types:

- Administrator
- Power user
- Standard user

Each user type has a different view that correlates with the functions allowed for that user role. The primary differences appear in the menu bars.

Administrator menu bar



Power and Standard user menu bar

The following table describes the available menu options.

Menu	Administrator user options	Power user options	Standard user options
Reports	Create reports Custom reports Battery report Base Station F/W report	Create report Custom reports Battery report	Create report Custom reports Battery report
Alerts	View global active alerts View global alert history Define new alert Alert management Delete alerts from database	View global active alerts View global alert history Define new alert Alert management	View global active alerts View global alert history
Administration	Create account User accounts System log Options	None	None
My Account	Password Preferences	Password Preferences	Password Preferences

Menu	Administrator user options	Power user options	Standard user options
Window	Close all Data center	Close all Data center	Close all Data center
Help	User Guide About	User Guide About	User Guide About

For more information about user types, see Creating user accounts (on page 83).

Reports menu

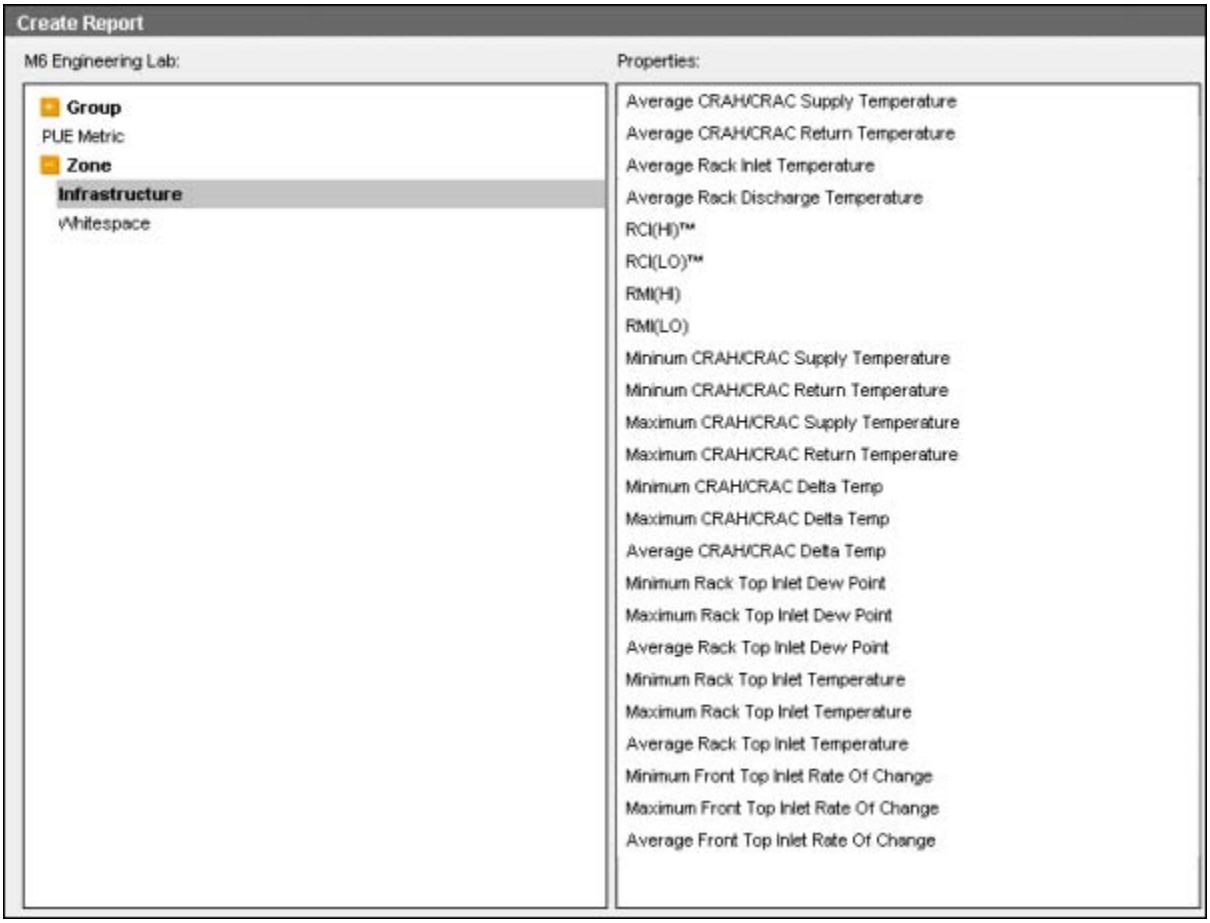
The Reports menu offers the following options:

- Create reports
- Custom reports
- Battery reports
- Base Station F/W reports

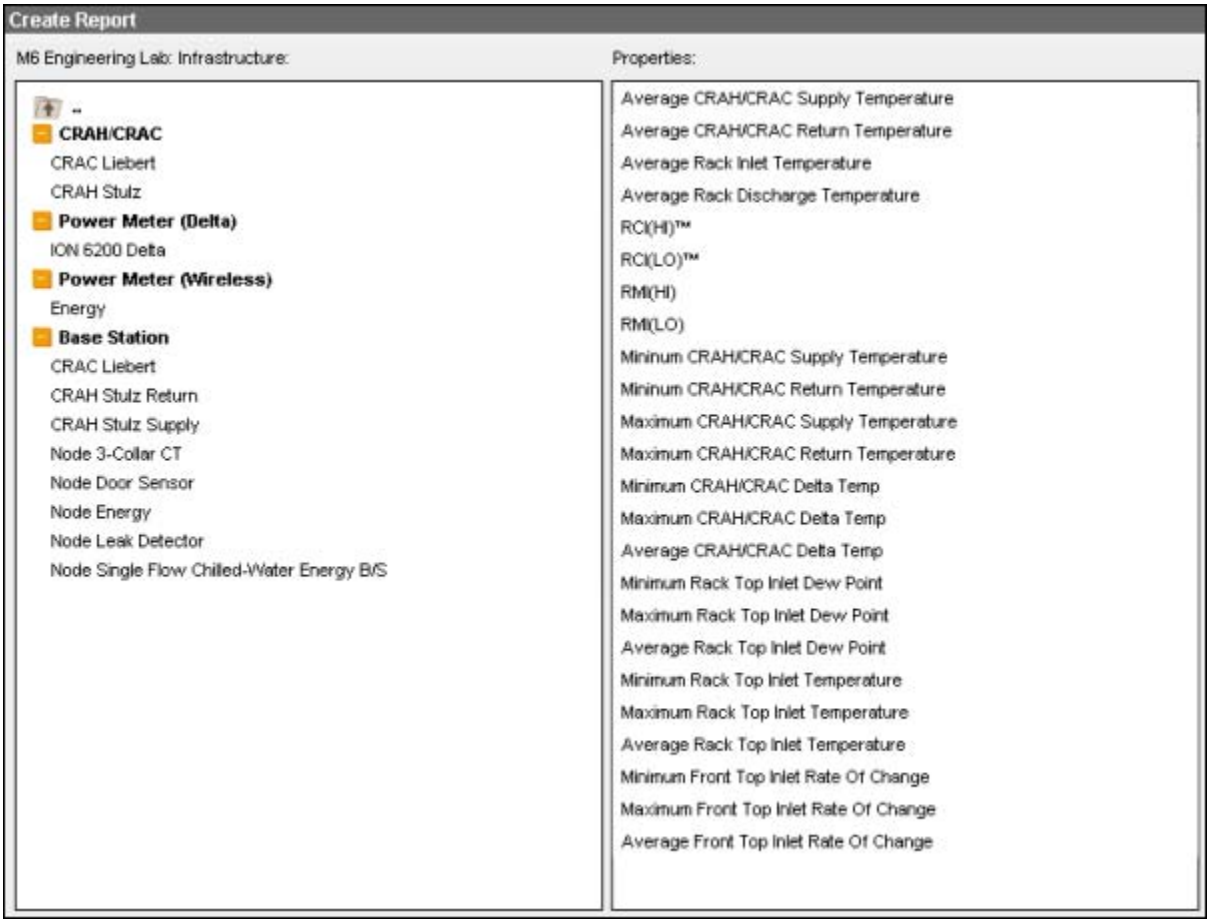
Creating a report

1. From the **Reports** menu, select **Create Reports**. The Create Report window appears.
2. Select one of the following;

- Single-click a zone to view the properties for that zone.

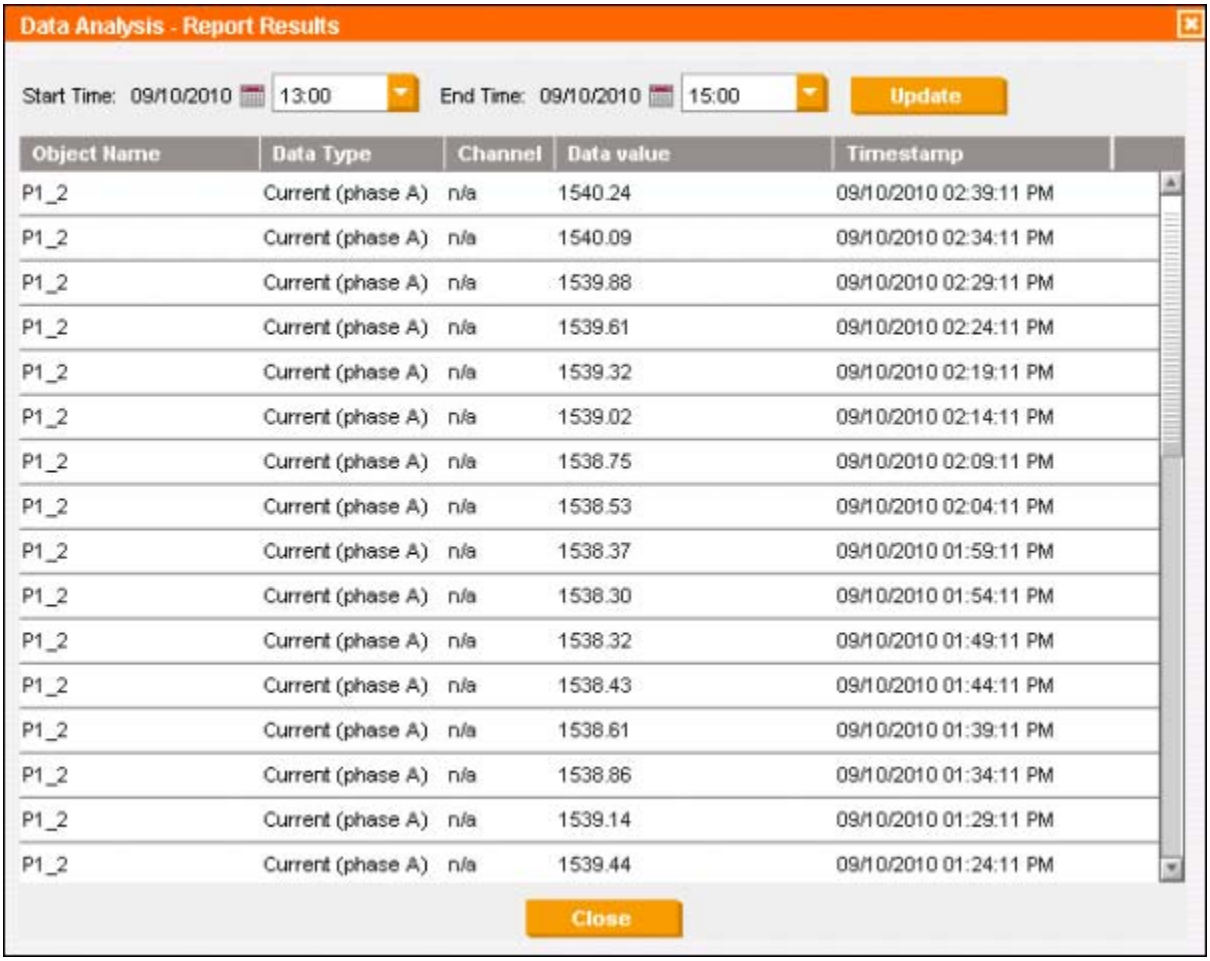


- Double-click a zone to view all of the objects defined within that zone.

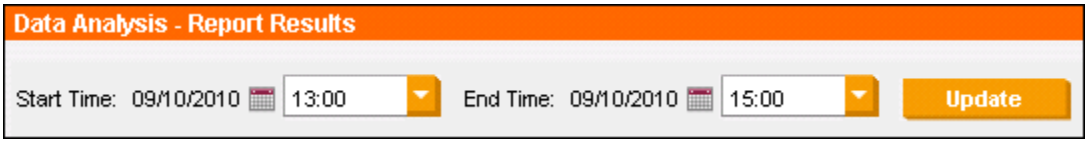


3. Select one or more of the properties listed.
   - Highlight the sensors in the Properties list, and then select the **>** button to select one or more sensors. The selected sensors appear in the Selected Properties list.
   - Select the **>>** button to select all sensors in the Properties list. All sensors appear in the Selected Properties list.
4. To remove sensors from the Selected Properties list:
   - Highlight the sensors in the Selected Properties list, and then select the **<** button to remove sensors from the analysis. The selected sensors reappear in the Properties list.
   - Select the **<<** the button to remove all sensors from the analysis. All sensors reappear in the Properties list.
5. Select one of the following options:

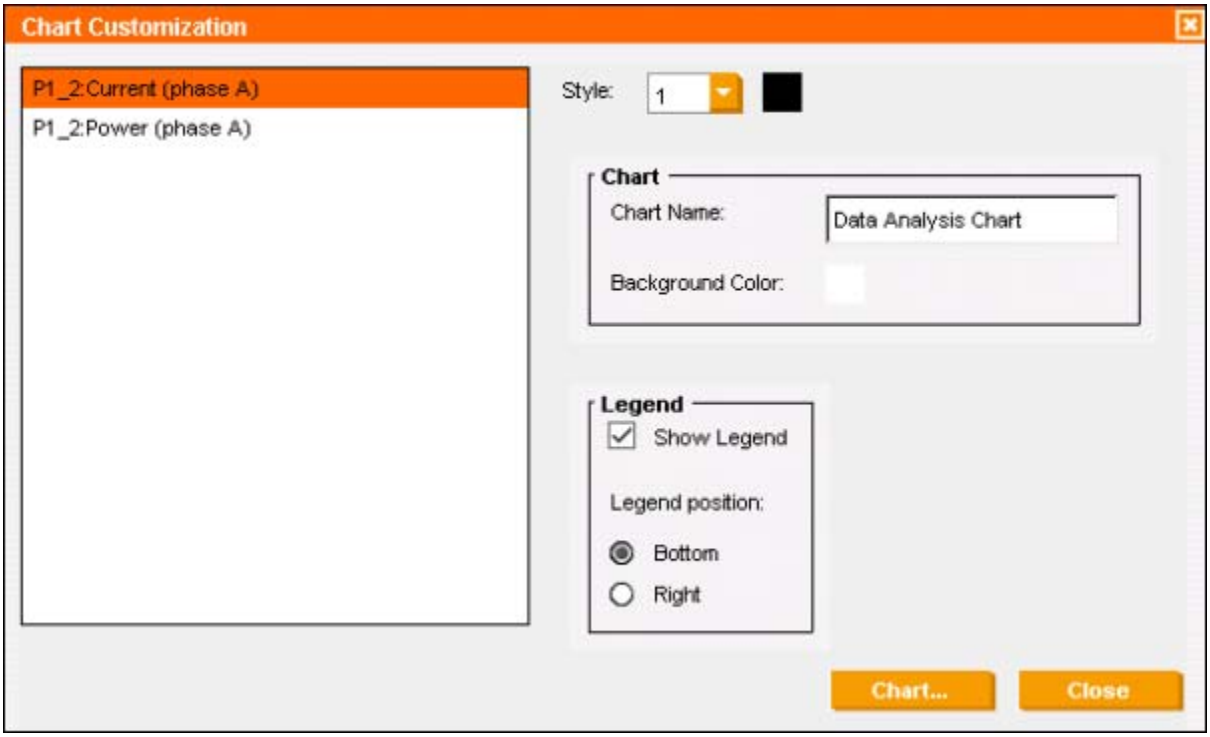
- Select **Tabular** to view the report results in a table. The Report Results appear.


Data Analysis - Report Results
Start Time: 09/10/2010 13:00 End Time: 09/10/2010 15:00 Update
Object Name | Data Type | Channel | Data value | Timestamp
P1_2 | Current (phase A) | n/a | 1540.24 | 09/10/2010 02:39:11 PM
P1_2 | Current (phase A) | n/a | 1540.09 | 09/10/2010 02:34:11 PM
P1_2 | Current (phase A) | n/a | 1539.88 | 09/10/2010 02:29:11 PM
P1_2 | Current (phase A) | n/a | 1539.61 | 09/10/2010 02:24:11 PM
P1_2 | Current (phase A) | n/a | 1539.32 | 09/10/2010 02:19:11 PM
P1_2 | Current (phase A) | n/a | 1539.02 | 09/10/2010 02:14:11 PM
P1_2 | Current (phase A) | n/a | 1538.75 | 09/10/2010 02:09:11 PM
P1_2 | Current (phase A) | n/a | 1538.53 | 09/10/2010 02:04:11 PM
P1_2 | Current (phase A) | n/a | 1538.37 | 09/10/2010 01:59:11 PM
P1_2 | Current (phase A) | n/a | 1538.30 | 09/10/2010 01:54:11 PM
P1_2 | Current (phase A) | n/a | 1538.32 | 09/10/2010 01:49:11 PM
P1_2 | Current (phase A) | n/a | 1538.43 | 09/10/2010 01:44:11 PM
P1_2 | Current (phase A) | n/a | 1538.61 | 09/10/2010 01:39:11 PM
P1_2 | Current (phase A) | n/a | 1538.86 | 09/10/2010 01:34:11 PM
P1_2 | Current (phase A) | n/a | 1539.14 | 09/10/2010 01:29:11 PM
P1_2 | Current (phase A) | n/a | 1539.44 | 09/10/2010 01:24:11 PM
Close

If necessary, modify the criteria for the historical data retrieved during data analysis, and then select **Update**.



- Select **Chart** to view the report results in a table. The Chart Customization window appears.



If necessary, modify the chart customization options, and then select **Chart**. The Report Results appear.

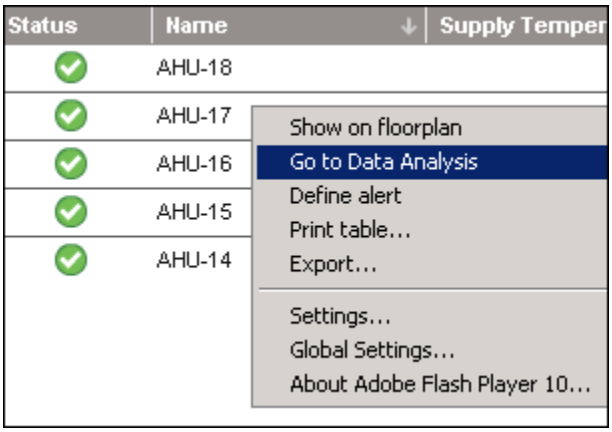
Analyzing data

All users can perform an ad hoc report of historical sensor data for each of the following options:

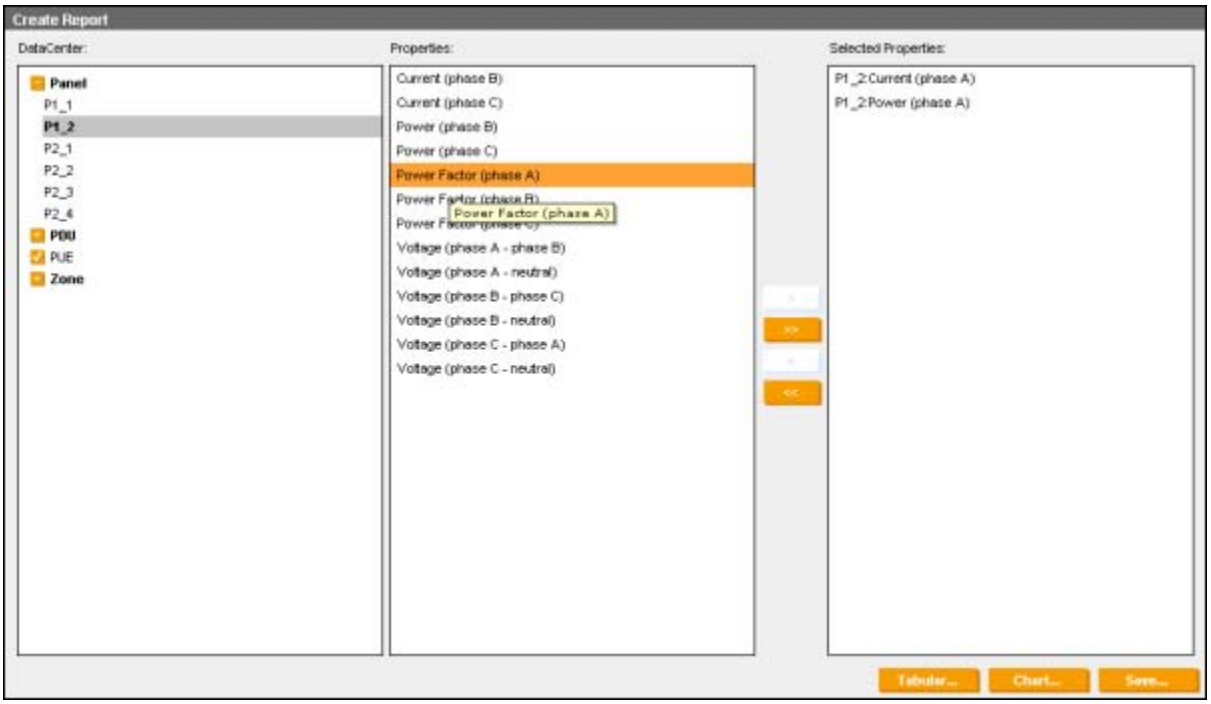
- CRAH/CRAC
- Rack
- Pressure
- Base station

To use the data analysis function:

1. Select an object tab. The information for all sensor objects within that zone appears in the Tabular view.
2. Move your mouse over a row, and right-click to open the menu.
3. Select **Go to Data Analysis**.



The Create Report window appears.



4. Continue to create the report ("Creating a report" on page 56).

Saving the report

To save the report of the retrieved data for future references:

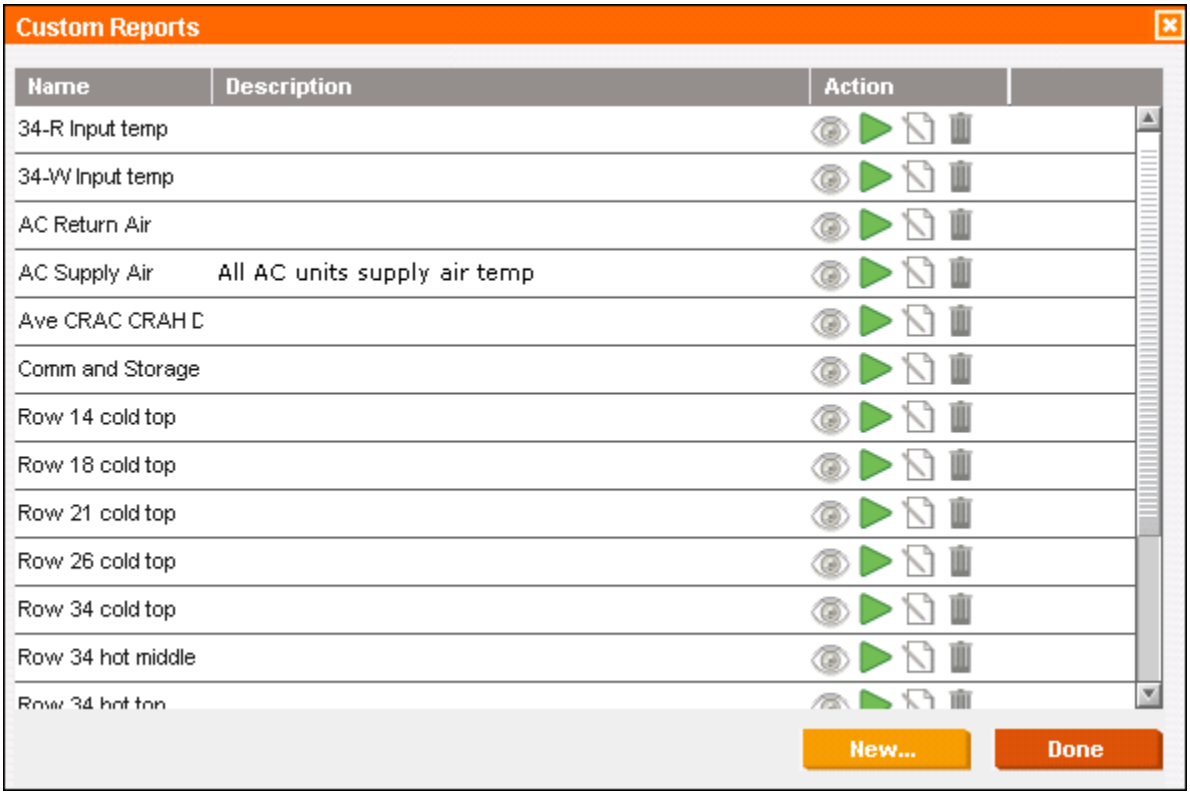
1. Select **Save** from the Create Report window. The Save Report Query window appears.

2. Complete the Name and Description fields.
3. Make the query available to:
   - Myself only
   - Everyone
4. Select **Add** to save the query.

Creating custom reports

You can view, run, edit, and delete previous custom queries.

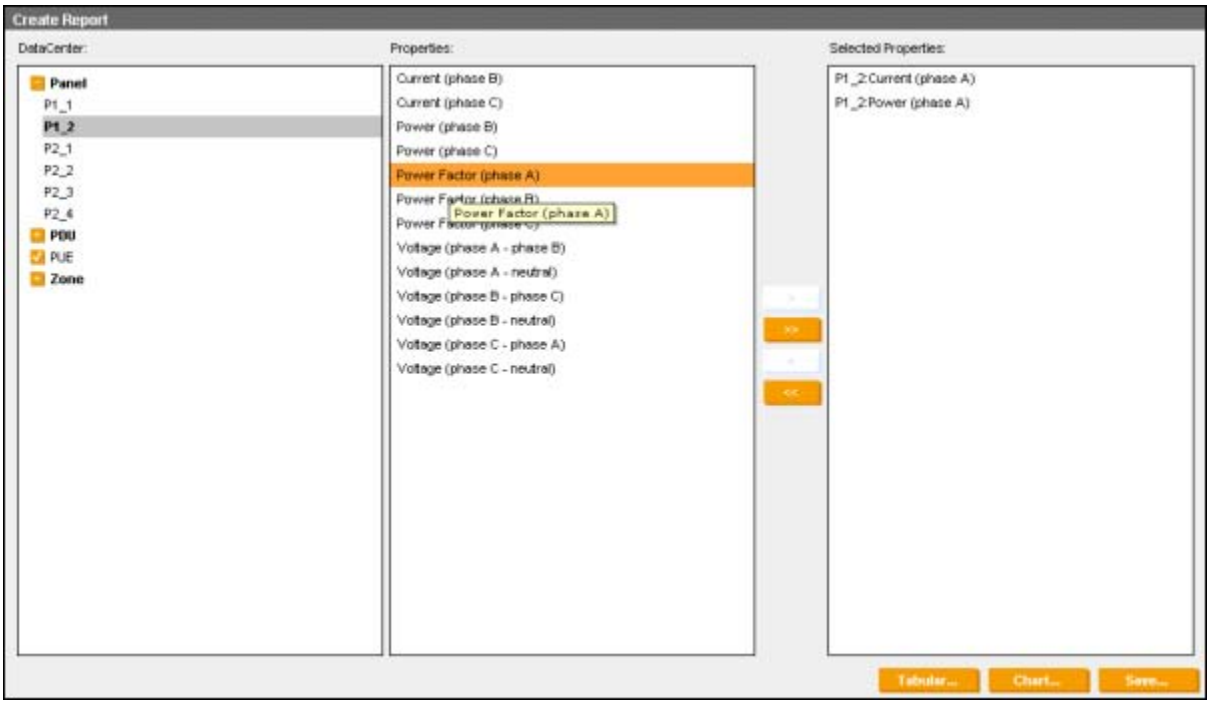
1. From the **Reports** menu, select **Custom Reports**. The Custom Reports window appears.



The names and descriptions of previous custom queries saved using the Save Report Query window appear in the columns of the window. The buttons to the right of each column enable the user to perform additional actions.

Item	Action
	View Custom Query Selection
	Run Custom Query
	Edit Custom Query
	Delete Custom Query

2. To create a new query, select **New.** The Create Report window appears.



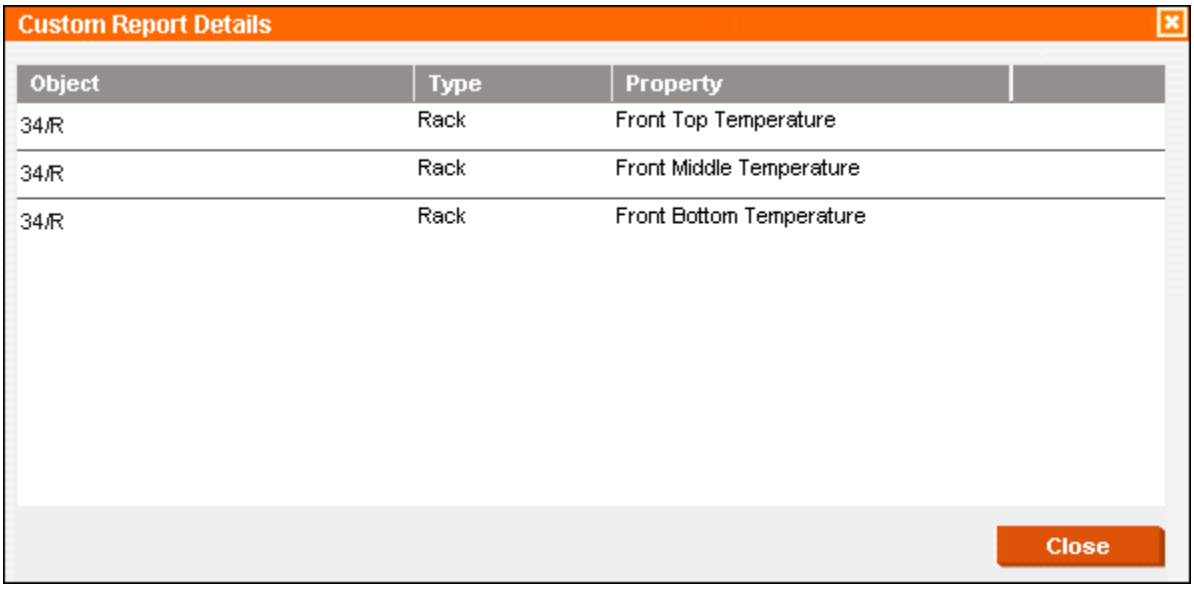
See Creating a report (on page 56) for more information.

3. Select **Save** to save any changes and close the window.

Viewing custom queries

1. From the **Reports** menu, select **Custom Reports**. The Custom Report window appears.
2. Select the row of the query you want to view.

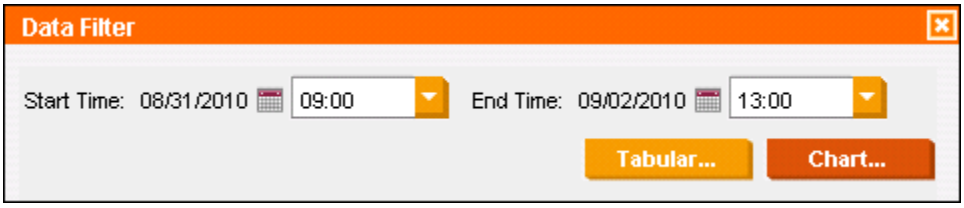
3. Select the **View Custom Query Selection** icon. The Custom Report Details window appears and displays the names of the objects and sensors used in the previous query.



4. Select **Close** to close the window and return to the Custom Reports window.

Running custom queries

1. From the **Reports** menu, select **Custom Reports**. The Custom Report window appears.
2. Select the row of the query you want to run.
3. Select the **Run Custom Query** icon. The Data Filter window appears.



4. Select the date/time filters for the current run and specify the export option for the analysis.
   - Select **Tabular** to view the custom query results in a table.
   - Select **Chart** to view the custom query results in a chart.

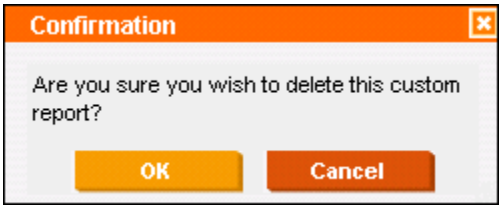
Editing custom queries

1. From the **Reports** menu, select **Custom Reports**. The Custom Report window appears.
2. Select the row of the query you want to run.
3. Select the **Edit Custom Query** icon. The Create Report window appears.
4. Make all necessary edits, and select **Save**.

Deleting custom queries

1. From the **Reports** window, select **Custom Reports**. The Create Reports window appears.
2. Select the row of the query you want to delete.

3. Select **Delete Custom Query** icon. A confirmation window appears.



4. Select **OK** to delete the custom query. The name of the query and its summary no longer appear in the Custom Reports window.

Generating battery reports

Battery reports might reflect an inaccurate condition, depending on when you run the report. If you generate the battery report after a recent installation or deployment, the battery report might show a depleted battery, due to the wireless device battery being on throughout the installation process.

For the most accurate battery report results, HP recommends waiting a minimum of one week of normal operation before you generate a battery report.

> **NOTE:** The sensor objects require approved lithium batteries, such as Energizer or Eveready L91 batteries, not alkaline batteries. When the battery report indicates that a battery is near end of lifetime, replace the battery immediately.

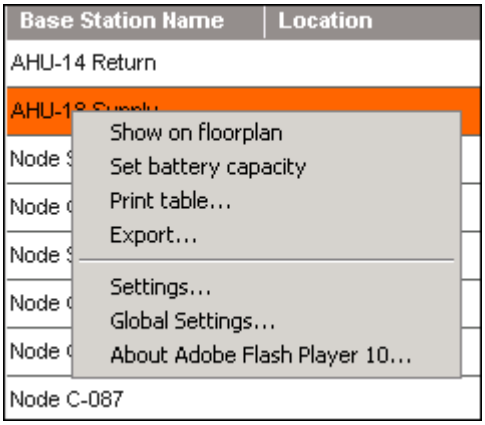
1. Select the **Reports** menu.
2. Select **Battery Report**. The Battery Report window appears.

Battery Report

Base Station Name	Location	Zone	Battery Life
AHU-14 Return		Comm and Storage	16.1 year(s)
AHU-18 Supply		Comm and Storage	16.1 year(s)
Node S-073		Comm and Storage	16.1 year(s)
Node C-082		Comm and Storage	16.1 year(s)
Node S-067		Comm and Storage	16.1 year(s)
Node C-077		Comm and Storage	16.1 year(s)
Node C-092		Comm and Storage	16.1 year(s)
Node C-087		Comm and Storage	16.1 year(s)
Node S-025		Comm and Storage	16.1 year(s)
Node SW-025-AK		Comm and Storage	16.1 year(s)
Node S-019		Comm and Storage	16.1 year(s)
AHU-14 Supply		Comm and Storage	16.1 year(s)
Node S-013		Comm and Storage	16.1 year(s)
Node SW-019-AJ		Comm and Storage	16.1 year(s)
Node S-079		Comm and Storage	16.1 year(s)

The report is automatically generated based on sensor readings. It provides estimated battery life for all object batteries and suggests recommended replacement parameters.

- The scroll bar enables you to see the entire report.
- Right-click a row to access the context menu, and then select from the menu.



Base Station F/W reports

From the **Reports** menu, select **Base Station F/W reports**. The Base Station F/W Version Report window appears.

Base Station F/W Version Report

Base Station Name	Location	Zone	App Version	Nwk Version	OS Versi
B/S Row2_06		Whitespace	2 10185069	3 10185069	3 0
B/S Row1_01		Whitespace	2 10185069	3 10185069	3 0
B/S Row4_09		Whitespace	2 10185069	3 10185069	3 0
B/S Pressure1		Whitespace	2 10185069	3 10185069	3 0
B/S Row1_06		Whitespace	2 10185069	3 10185069	3 0
B/S Row3_07		Whitespace	2 10185069	3 10185069	3 0
B/S Row2_03		Whitespace	2 10185069	3 10185069	3 0
B/S Pressure3		Whitespace	2 10185069	3 10185069	3 0
B/S Row1_03		Whitespace	2 10185069	3 10185069	3 0
B/S Row1_02		Whitespace	2 10185069	3 10185069	3 0
B/S Row2_08		Whitespace	2 10185069	3 10185069	3 0
B/S Row1_05		Whitespace	2 10185069	3 10185069	3 0
B/S Row3_11		Whitespace	2 10185069	3 10185069	3 0
B/S Row2_07		Whitespace	2 10185069	3 10185069	3 0
B/S Pressure2		Whitespace	2 10185069	3 10185069	3 0
B/S Row3_05		Whitespace	2 10185069	3 10185069	3 0
B/S Row2_04		Whitespace	2 10185069	3 10185069	3 0
B/S Row4_01		Whitespace	2 10185069	3 10185069	3 0

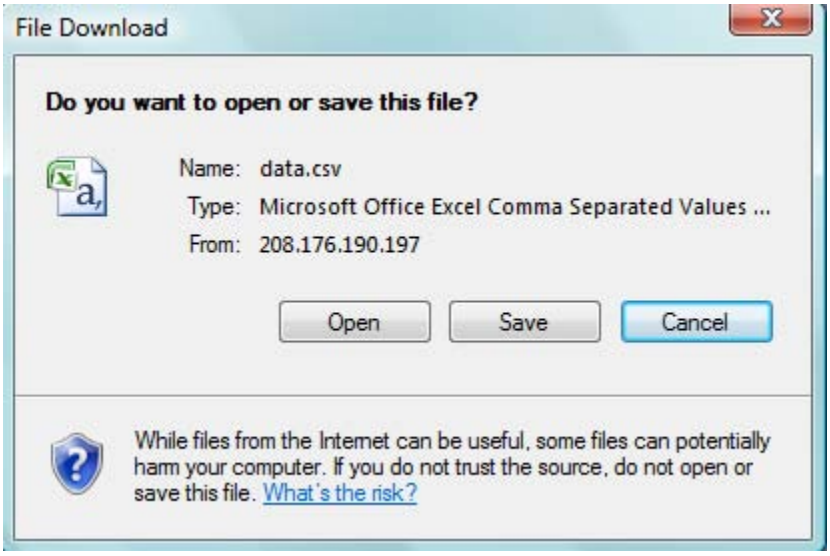
The report is generated automatically to include each of the base stations information including name, location, zone, and firmware data.

Exporting report data to .csv file

You can export the sensor data from your reports to a Comma Separated Values (CSV) file format that can be used with an Excel spreadsheet.

To export the report sensor data:

1. In the Create Report window, create your custom report.
2. Select the Tabular viewing option.
3. Right-click the row of data you want to export.
4. Select **Export.** A window appears asking you to save the file.


File Download
Do you want to open or save this file?
Name: data.csv
Type: Microsoft Office Excel Comma Separated Values ...
From: 208.176.190.197
Open
Save
Cancel
While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

If you do not see the download window, you might have pop-ups blocked or need to add the server to your trusted zone to allow file downloads. See your browser documentation for enabling pop-ups.

Viewing sensor data for analysis

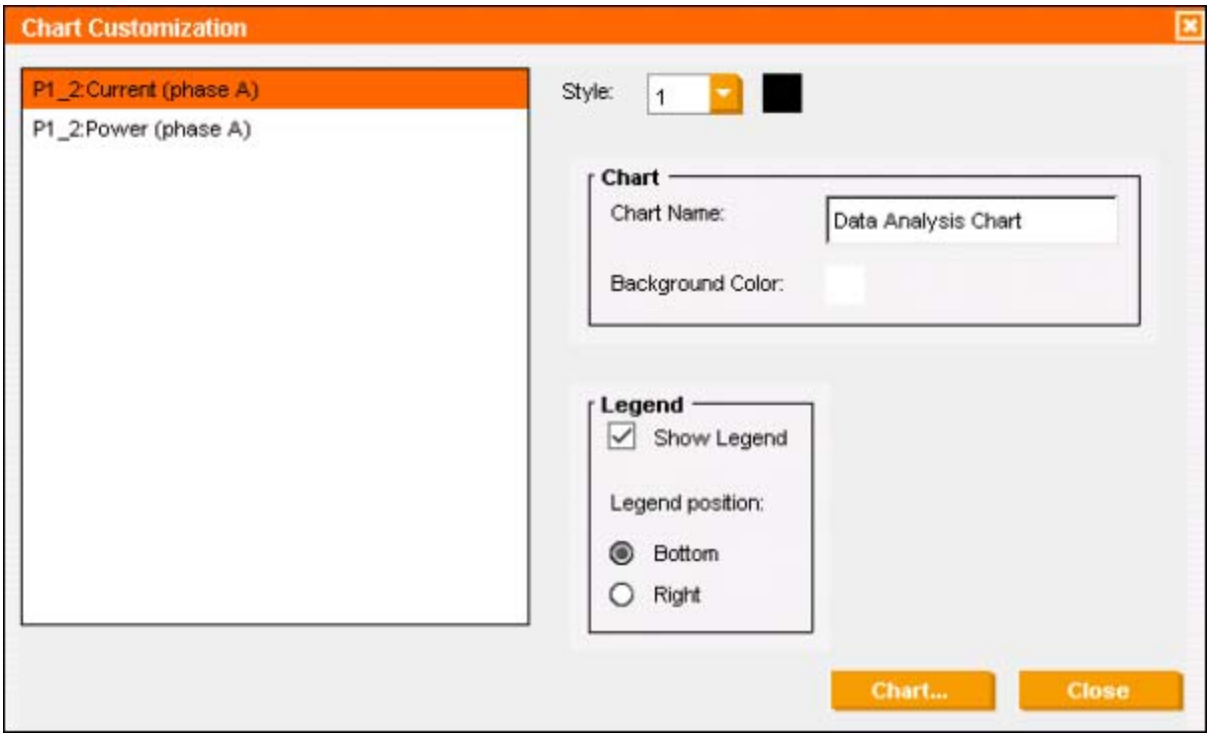
1. Specify the data you want to compare.
   a. Select the aging criteria.
   b. Select the first base station and a specific temperature sensor.
   c. Select the second base station and a specific temperature sensor.
   d. Select the third base station and a specific temperature sensor.
2. Select how you want the data comparison shown. A row of buttons provides access to viewing options.

   - Select **Tabular** to view the data in a simple detail format.
   - Select **Chart** to plot the retrieved data on a chart and compare sensor trends across a set timeline. For more information, see Customizing charts (on page 68).

- Select **Save** to save the data comparison.

Customizing charts

1. Click **Chart** to plot the retrieved data on a chart and compare sensor trends across a set timeline. The Chart Customization window appears.



2. Select the data in the left list and configure it using the following options:
   - Style
   - Color
   - Chart name
   - Background color
   - Appearance and location of legend
3. Select **Chart** to create a chart using the selected data.

Alerts menu

The Alerts menu options differ based on the user type.

Administrators can choose from the following options:

- View global active alerts
- View global alert history
- Define new alert
- Alert management
- Delete alerts from database

Power users can choose from the following options:

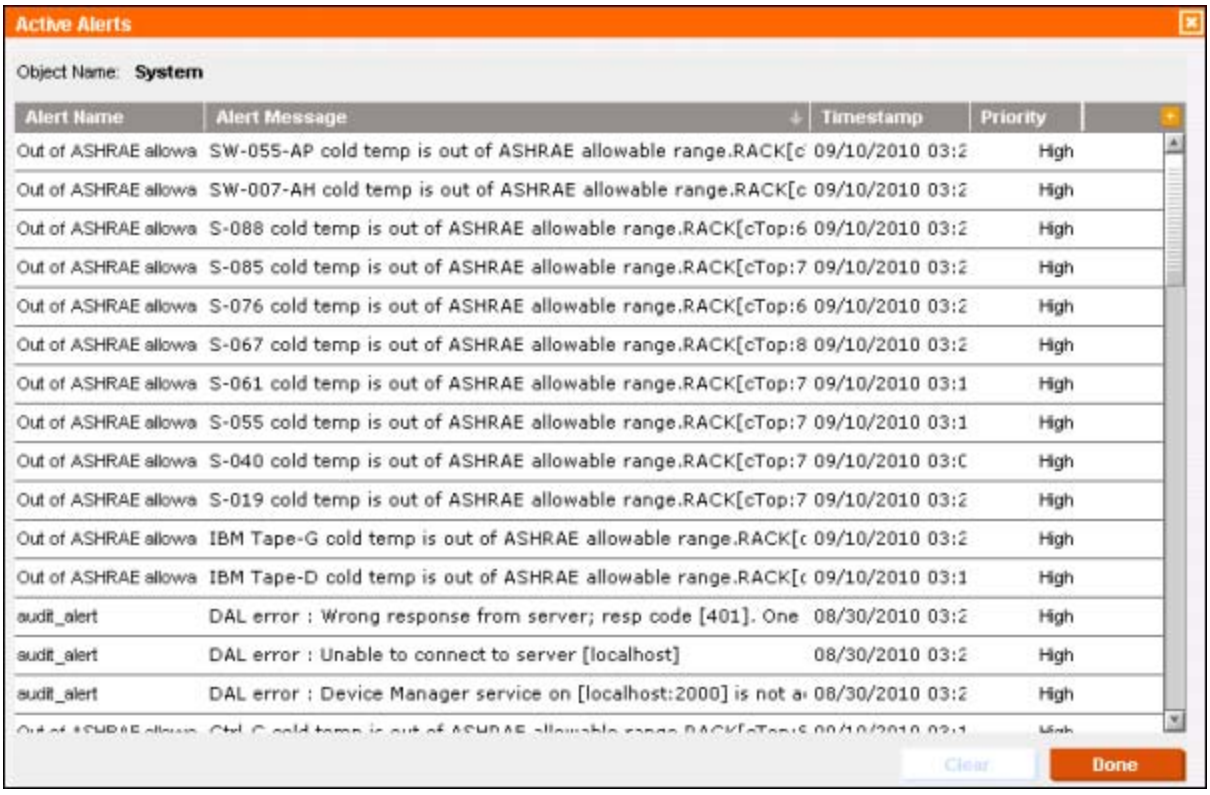
- View global active alerts
- View global alert history
- Define new alert
- Alert management

Standard users can choose from the following options:

- View global active alerts
- View global alert history

Viewing global active alerts

1. Select the **Alerts** menu.
2. Select **View Global Active Alerts**. The Active Alerts window appears, listing all active alerts for all data centers monitored by the HP Insight Environmental Observer.


Active Alerts
Object Name: System
Alert Name
Alert Message
Timestamp
Priority
Out of ASHRAE allowa SW-055-AP cold temp is out of ASHRAE allowable range.RACK[c 09/10/2010 03:2 High
Out of ASHRAE allowa SW-007-AH cold temp is out of ASHRAE allowable range.RACK[c 09/10/2010 03:2 High
Out of ASHRAE allowa S-088 cold temp is out of ASHRAE allowable range.RACK[cTop:6 09/10/2010 03:2 High
Out of ASHRAE allowa S-085 cold temp is out of ASHRAE allowable range.RACK[cTop:7 09/10/2010 03:2 High
Out of ASHRAE allowa S-076 cold temp is out of ASHRAE allowable range.RACK[cTop:6 09/10/2010 03:2 High
Out of ASHRAE allowa S-067 cold temp is out of ASHRAE allowable range.RACK[cTop:8 09/10/2010 03:2 High
Out of ASHRAE allowa S-061 cold temp is out of ASHRAE allowable range.RACK[cTop:7 09/10/2010 03:1 High
Out of ASHRAE allowa S-055 cold temp is out of ASHRAE allowable range.RACK[cTop:7 09/10/2010 03:1 High
Out of ASHRAE allowa S-040 cold temp is out of ASHRAE allowable range.RACK[cTop:7 09/10/2010 03:C High
Out of ASHRAE allowa S-019 cold temp is out of ASHRAE allowable range.RACK[cTop:7 09/10/2010 03:2 High
Out of ASHRAE allowa IBM Tape-G cold temp is out of ASHRAE allowable range.RACK[c 09/10/2010 03:2 High
Out of ASHRAE allowa IBM Tape-D cold temp is out of ASHRAE allowable range.RACK[c 09/10/2010 03:1 High
audit_alert DAL error : Wrong response from server; resp code [401]. One 08/30/2010 03:2 High
audit_alert DAL error : Unable to connect to server [localhost] 08/30/2010 03:2 High
audit_alert DAL error : Device Manager service on [localhost:2000] is not a 08/30/2010 03:2 High
Clear
Done

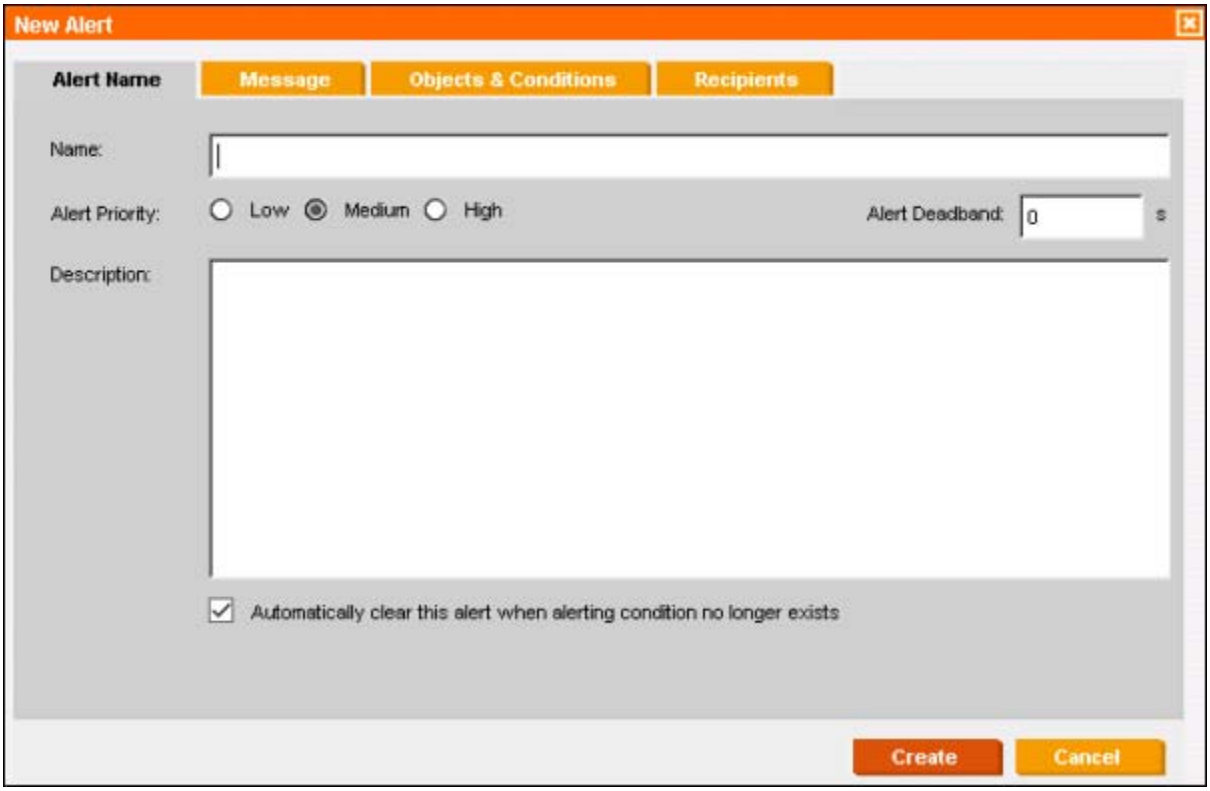
Viewing global alert history

1. Select the **Alerts** menu.
2. Select **View Global Alert History**. The Alerts History window appears that includes all active and previously cleared alerts for all data centers monitored by the HP Insight Environmental Observer.
3. Select the Start and End Dates, using the Calendar view for the history you want to view.
4. Select **Show Alerts** to update the window for the time span selected.

Defining a new alert

To define a new alert or edit existing alert definitions:

1. From the **Alerts** menu, select **Define New Alert**. The New Alert window appears with tabbed pages for each type of alert information to be defined.



2. In the Alert Name tab, enter the basic alert information.
   - Alert name—A unique name or identifier for the alert.
   - Alert priority—How often and in what order email notifications are sent to the alert recipient.
   - Description—Optional location to provide more details about the alert.
3. Select the **Message** tab, and create the alert notification message.
   - Message header—The subject line of the alert notification message
   - Message body—The content of the alert notification message
   - Macros—Data inserted into the message body that cannot be used in the message header:
     - $MESSAGE$—Displays the data type and actual value that triggered the alert.
     - $NAME$—Displays the name of the object that triggered the alert.
     - $LOCATIONS$—Displays the location of the object that triggered the alert.
     - $TIMESTAMP$—Displays the time stamp when the alert was originally triggered.
4. Select the **Objects & Conditions** tab, and then adjust the types of objects and values you want evaluated for that alert.

> **NOTE:** Do not create conditions that are mutually exclusive. For example, a top temperature greater than 80°F and a top temperature less than 50°F. Be careful to select **Or** rather than **And**.

a. Create a condition.

NOTE: You can evaluate the data values and metrics for rack and CRAH/CRAC objects. You can evaluate only data values for base station, pressure, and sensor objects.

Object	Values available
Base station	Temperature Humidity Pressure Voltage Current Energy Liquid flow Door status Liquid presence Remaining battery days
Rack	Front top temperature Front middle temperature Front bottom temperature Rear top temperature Rear middle temperature Rear bottom temperature Reference temperature Humidity cTROf change Cold dew point
Pressure objects	Pressure
CRAC	Supply temperature Return temperature
Sensor	Temperature Humidity Pressure Voltage Current Energy Liquid flow Door status Liquid presence

b. Select the logical operator and enter the threshold value.

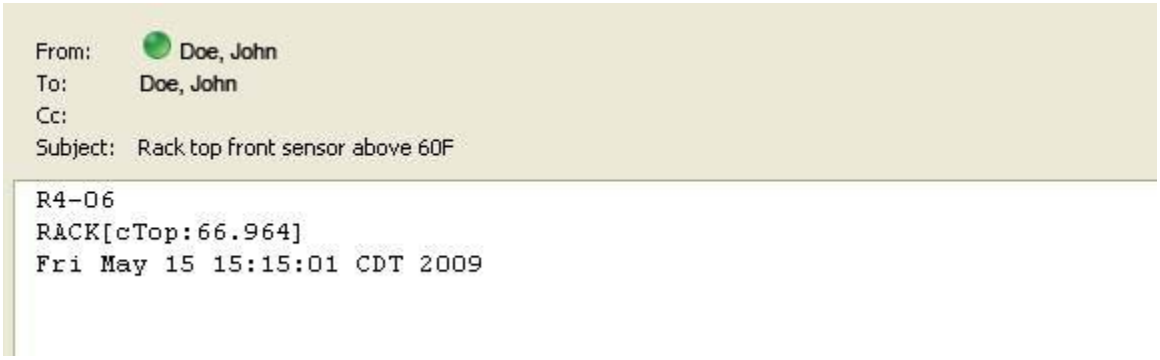
c. Select the ellipsis button to select all objects to apply the condition. Hold the **Ctrl** button while selecting objects to select multiple objects.

d. Select **OK** to save. The Objects & Conditions window closes, and the New Alert window appears.

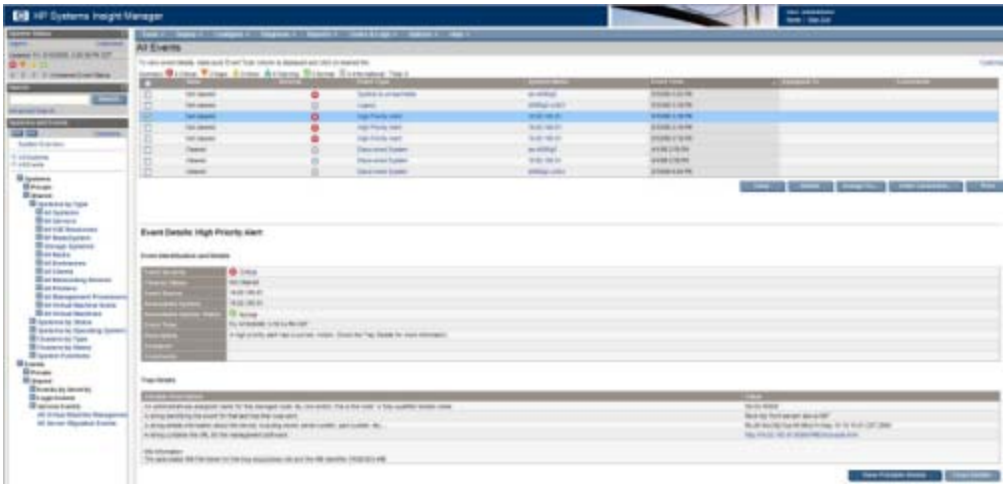
5. Select the **Recipients** tab, and indicate who receives the alert notification messages when an alert is triggered.

a. Select the type of alert notification from the menu.

— Email



— SNMP Trap



b. Enter a valid email address.

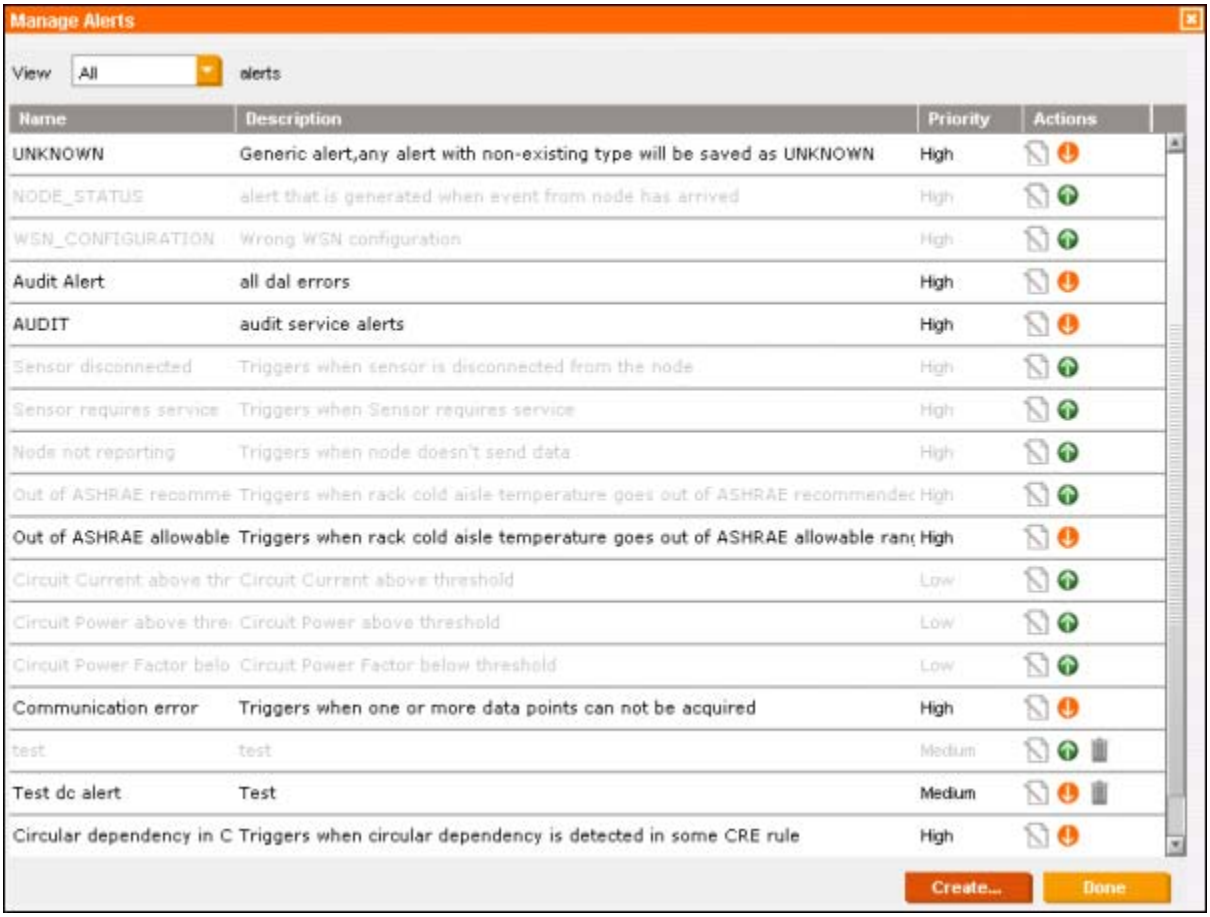
c. Select the Add **(+)** button to enter additional recipients. You can enter multiple email addresses by separating each email address with a semi-colon.

6. At the bottom right of the New Alert window, click **Create** to save the alert.

Managing alerts

1. From the **Alerts** menu, select **Alert Management**. The Manage Alerts window appears.

NOTE: In the Manage Alerts window, any alerts that are grayed out indicate a deactivated alert. For more information about activating alerts, see Activating an existing alert definition (on page 79).



Each entry in the alert list contains the following:

- Alert name
- Alert description
- Alert priority
- Edit Alert button
- Activate or Deactivate button
- Delete Alert button

2. Select the alerts you want to view, by selecting All, Active, or Inactive from the menu.

Performing alert actions

From the Manage Alerts window, you can create, edit, activate, deactivate, and delete alerts.

Item	Action
	Edits alert
	Activates alert
	Deactivates alert
	Deletes alert

Creating an alert definition

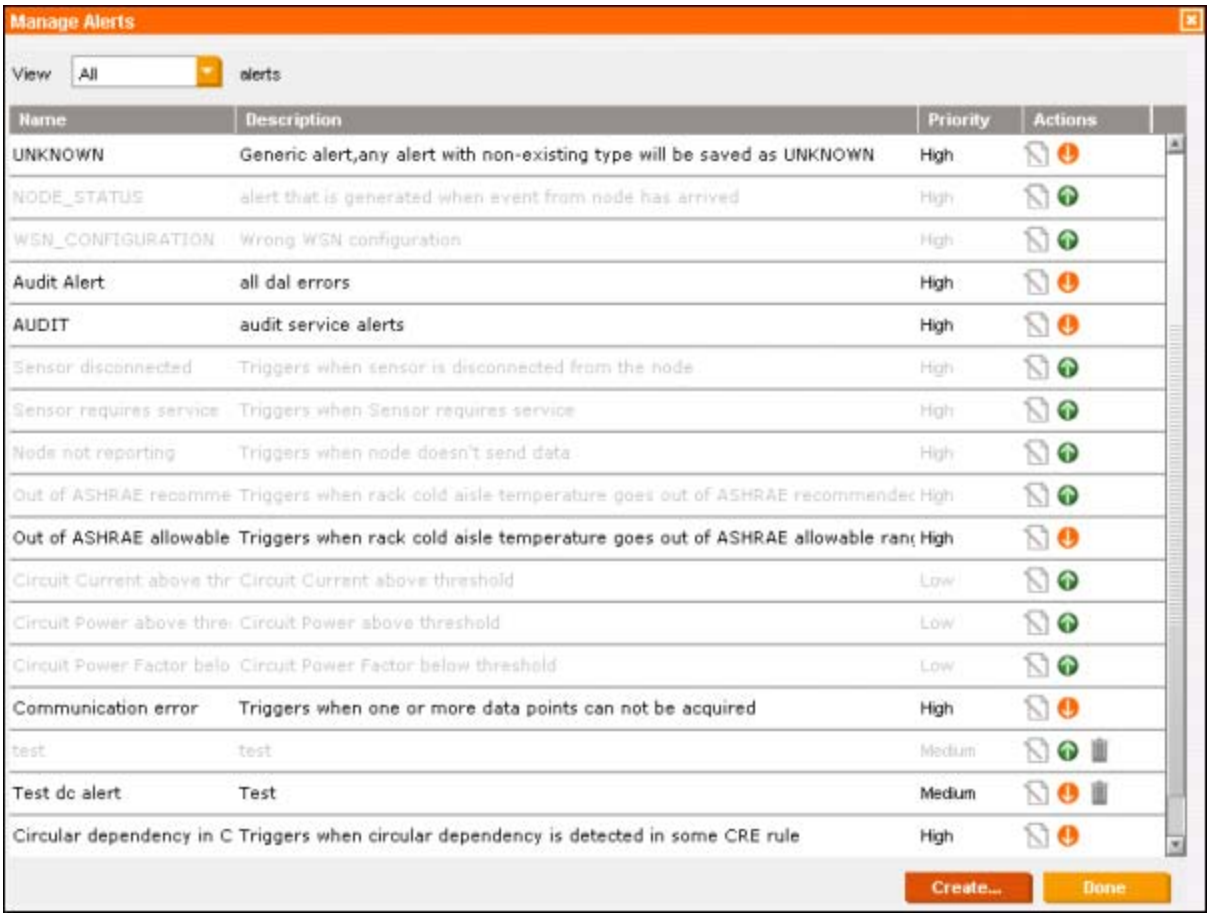
Observer has several predefined alerts within the application that cannot be changed or deleted from the system. The only action items for the predefined alerts is to activate, deactivate, or dismiss the alert. The following alerts are predefined.

Predefined alert	Description
UNKNOWN	All errors that are not otherwise defined.
AUDIT	Notifies an administrator if any software component is not running or is configured incorrectly. The default notification interval is every 5 minutes, though the interval can be adjusted in HP Insight Environmental Configurator.
Sensor requires service	A sensor on the HP Rack Sensor Array requires service.
Warning Front Temperature	Rack front temperature is outside the recommended range. The default range is between 18°C and 27°C (64.4°F and 80.6°F). You can adjust the temperature range in HP Insight Environmental Configurator.
Critical Front Temperature	Rack front temperature is outside the recommended range. The default range is between 18°C and 27°C (64.4°F and 80.6°F). You can adjust the temperature range in HP Insight Environmental Configurator.
DAL_ERROR	Notifies an administrator of any critical issue with any software component.
Circuit Current above threshold	Notifies an administrator if the current of any circuit that is monitored by BCMS is above the configured threshold.
Circuit Power above threshold	Notifies an administrator if the power of any circuit that is monitored by BCMS is above the configured threshold.
Circuit Power Factor below threshold	Notifies an administrator if the power factor of any circuit that is monitored by BCMS is below the configured threshold.
Communication error	Notifies an administrator if one or more data points cannot be acquired. This alert is generated by wired plug-ins such as Modbus, SNMP, XML, and web services that are used in communicating data.
Circular dependency in CRE rule	Notifies an administrator when circular dependency is detected in a CRE rule. This alert is generated if the PUE calculation graph is configured incorrectly. For more

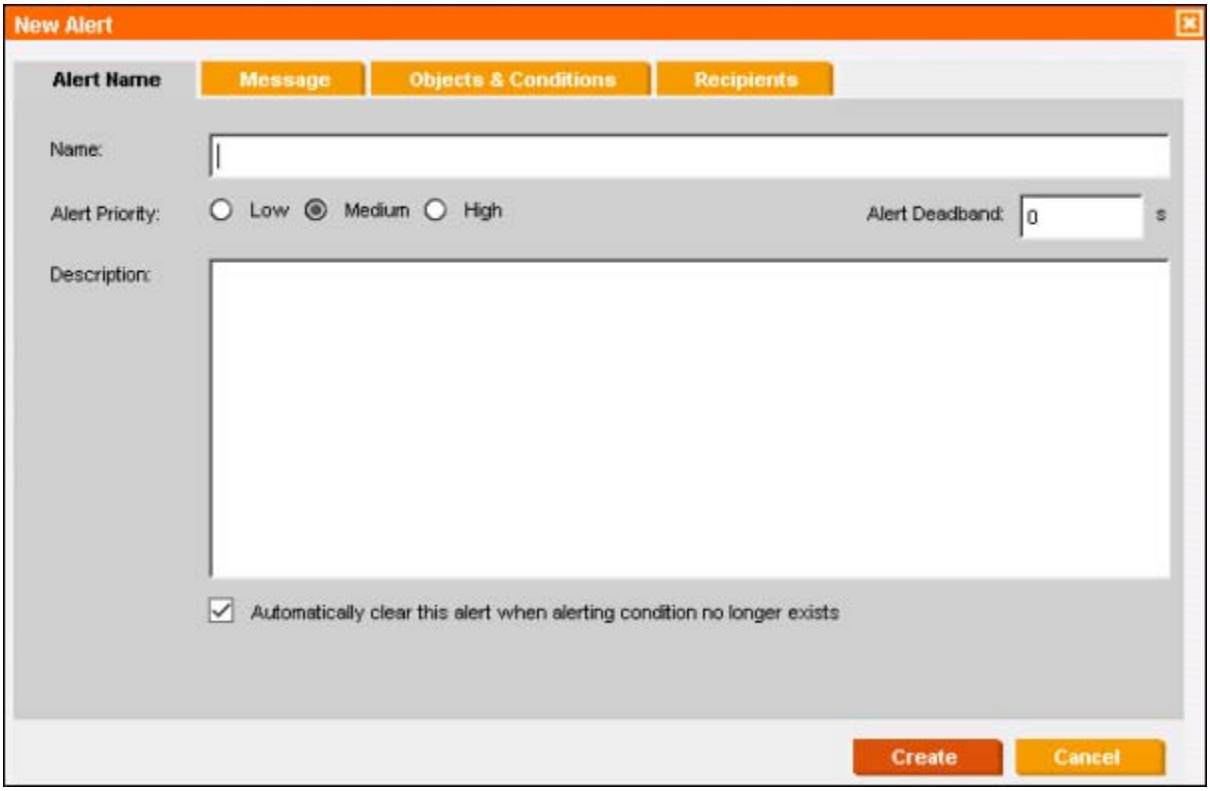
Predefined alert	Description
	information about PUE graphs, see the *HP Insight Environmental Configurator User Guide*.

To create a new alert definition:

1. From the **Alerts** menu, select **Alert Management**. The Manage Alerts window appears.



2. Click **Create**. The New Alert window appears.

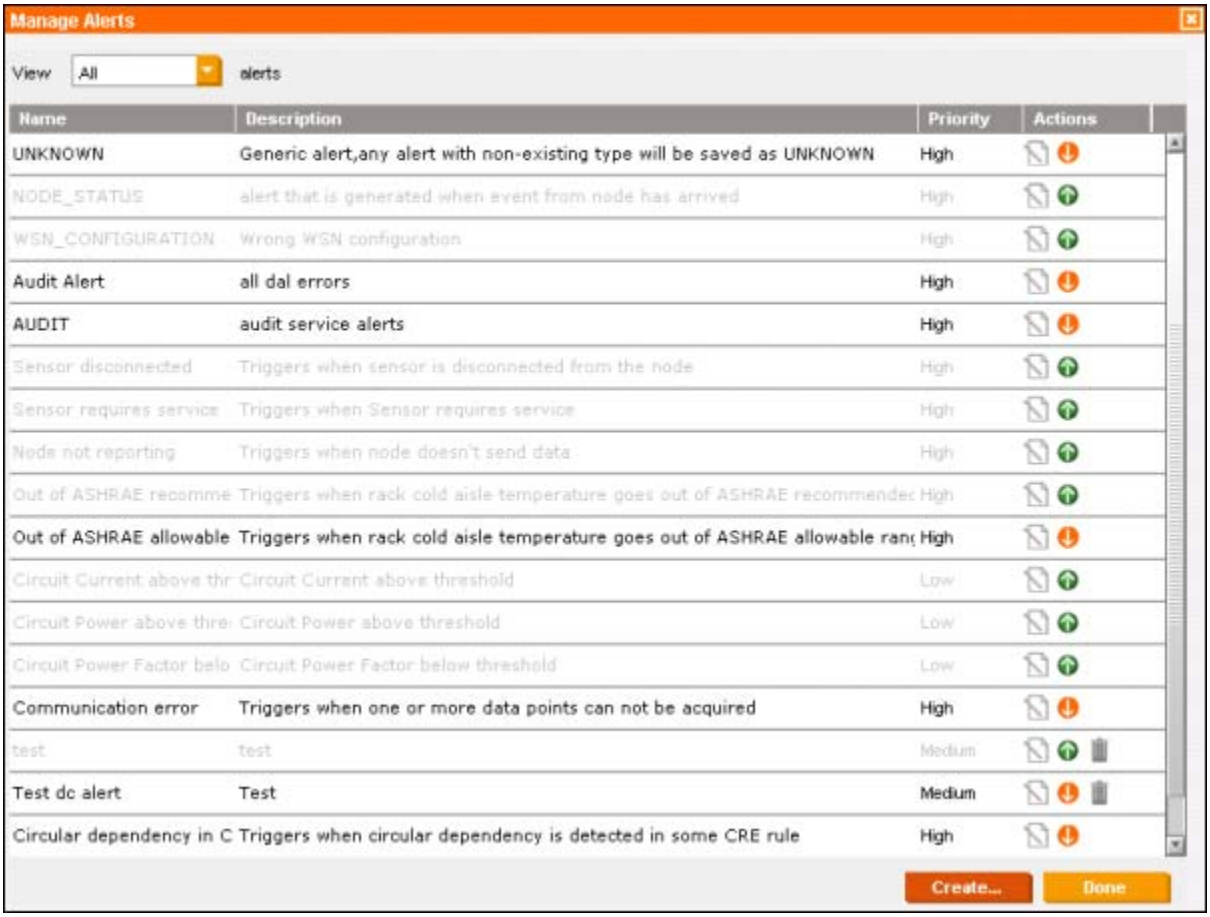


3. Complete the following information:
   - Name—Name the new alert
   - Alert Priority—Select either Low, Medium, or High priority
   - Alert Deadband—Select the deadband in seconds. The deadband value is the amount of time between the alert condition and the alert. A value of zero triggers an alert immediately during an alert condition.
   - Description—Describe the alert condition.
4. Select the **Automatically clear this alert when alerting condition no longer exists** box to clear the alert automatically when the condition no longer exists.
5. Select **Create** to create the alert, save, and close, or select **Cancel** to close without saving.

Editing an existing alert definition

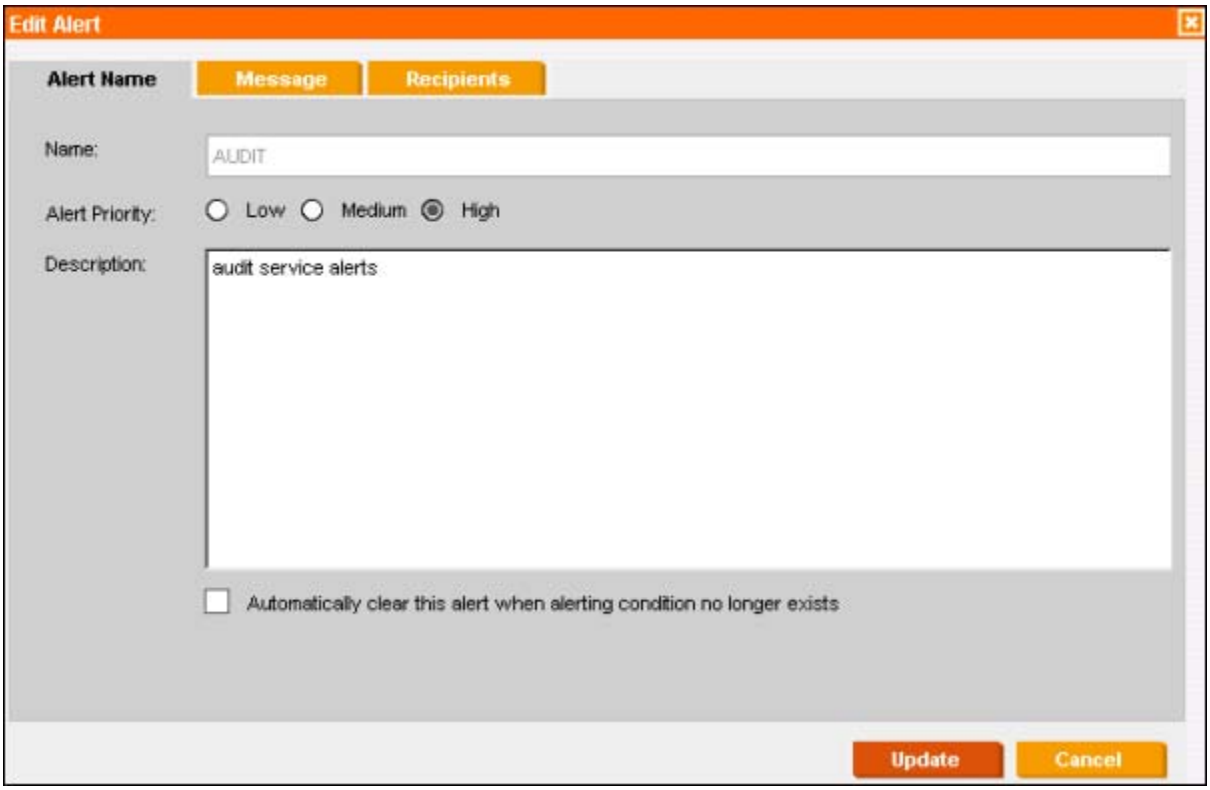
NOTE: The system-defined alerts cannot be edited or deleted. You can deactivate the alert, if you no longer want to receive warning of the alerting condition. All user-defined alerts include a trash can icon on the Manage Alerts window, and can be edited or deleted at any time with the appropriate user credentials.

1. From the **Alerts** menu, select **Alert Management**. The Manage Alerts window appears.



2. Select the **Edit alert** icon for a particular alert. The Edit alert window appears. Fields in this window are pre-populated with information entered for the associated alert.

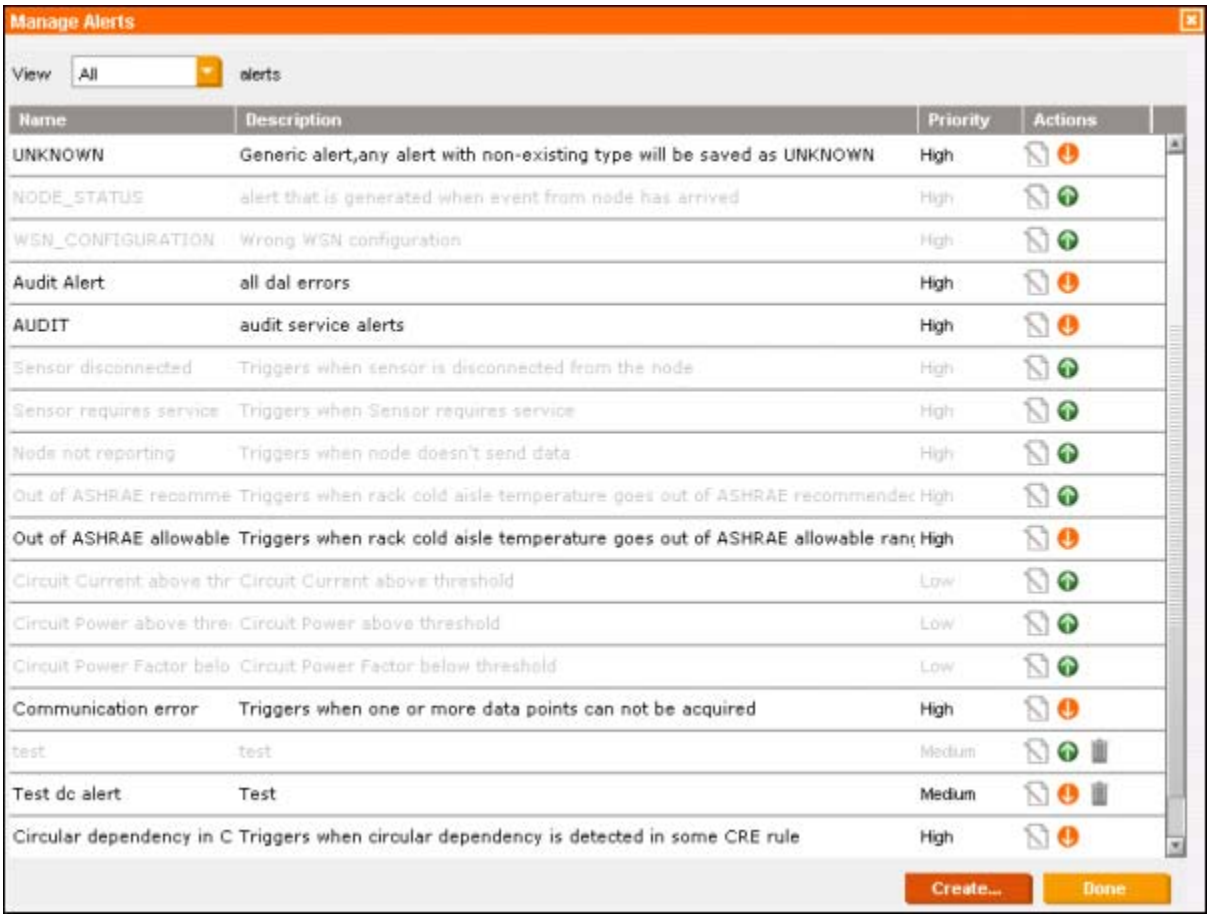
If you are editing a user-defined alert, additional tabs appear, enabling you to edit additional objects and conditions associated to the alert.



3. In this window, an administrator can edit any data relating to the alert definition.
4. Select **Update** to save edits, close the window, and return to the Manage Alerts window. A message appears at the lower left of the console window confirming that the alert was successfully updated.

Activating an existing alert definition

1. From the **Alerts** menu, select **Alert Management**. The Manage Alerts window appears.



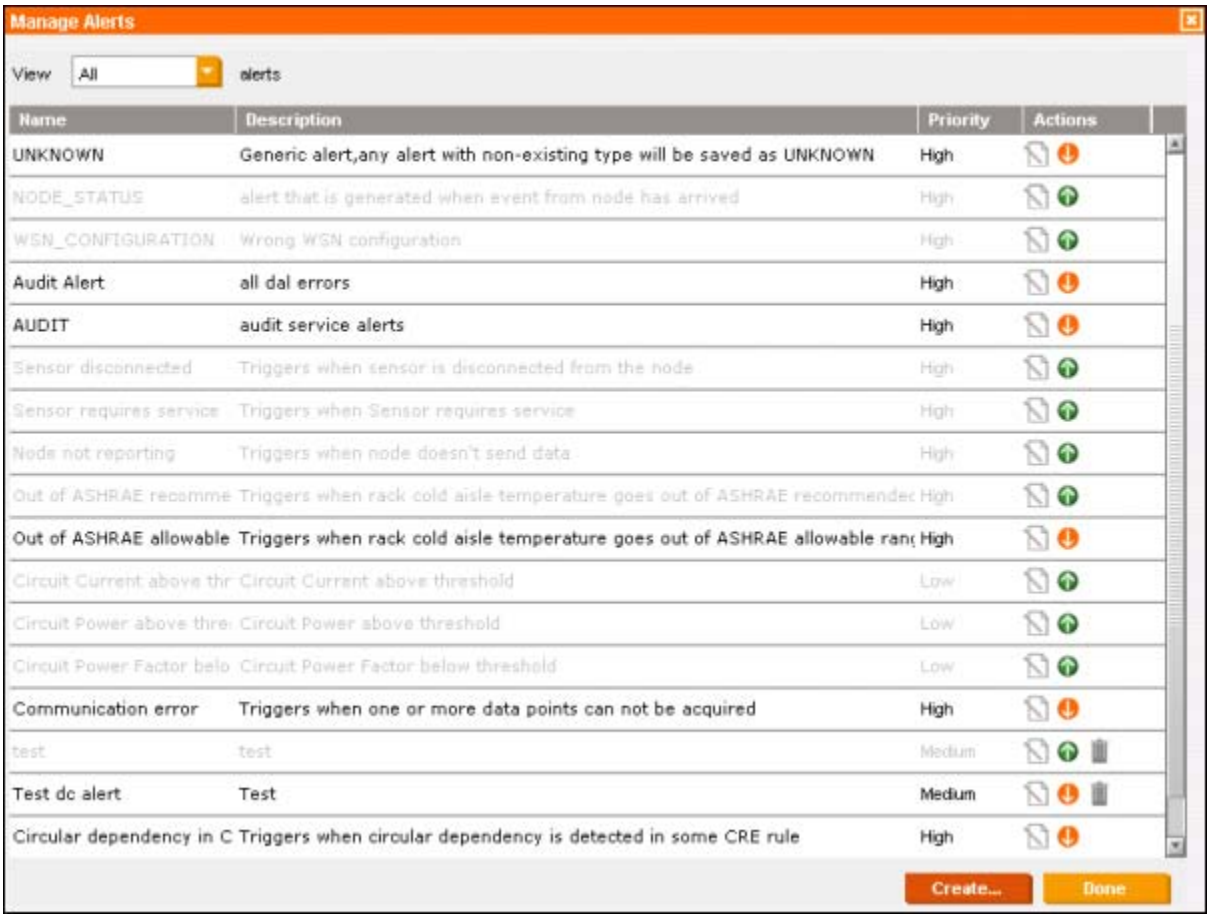
2. Select the **Activate alert** icon for a particular alert to place the definition in a status where an alert is evaluated or triggered, based on incoming sensor readings.

   A Confirmation window appears prompting you to confirm activating the alert definitions.

   - Select **OK** to close the window and return to the Manage Alerts window. A message appears at the lower left of the Portal window, informing the administrator that the alert was successfully activated.
   - Select **Cancel** to close the window and return to the Manage Alerts window without making any changes.

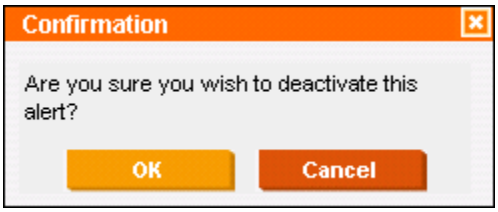
Deactivating an existing alert definition

1. From the **Alerts** menu, select **Alert Management**. The Manage Alerts window appears.



2. Select the **Deactivate alert** icon for a particular alert to place the definition in a status where an alert is no longer evaluated or triggered based on incoming sensor readings.

   A Confirmation window appears prompting you to confirm deactivating the alert definitions.



   - Select **OK** to close the window and return to the Manage Alerts window. A message appears at the lower left of the Portal window, informing the administrator that the alert was successfully deactivated.

     Although the deactivated alert definition is no longer available for use, the application saves the definition for interpretations and historical data, and it can be activated again. Therefore, the name of the deactivated alert definition cannot be reused, and the administrator should not create another alert definition with the same name.

   - Select **Cancel** to close the window and return to the Manage Alerts window without making any changes.

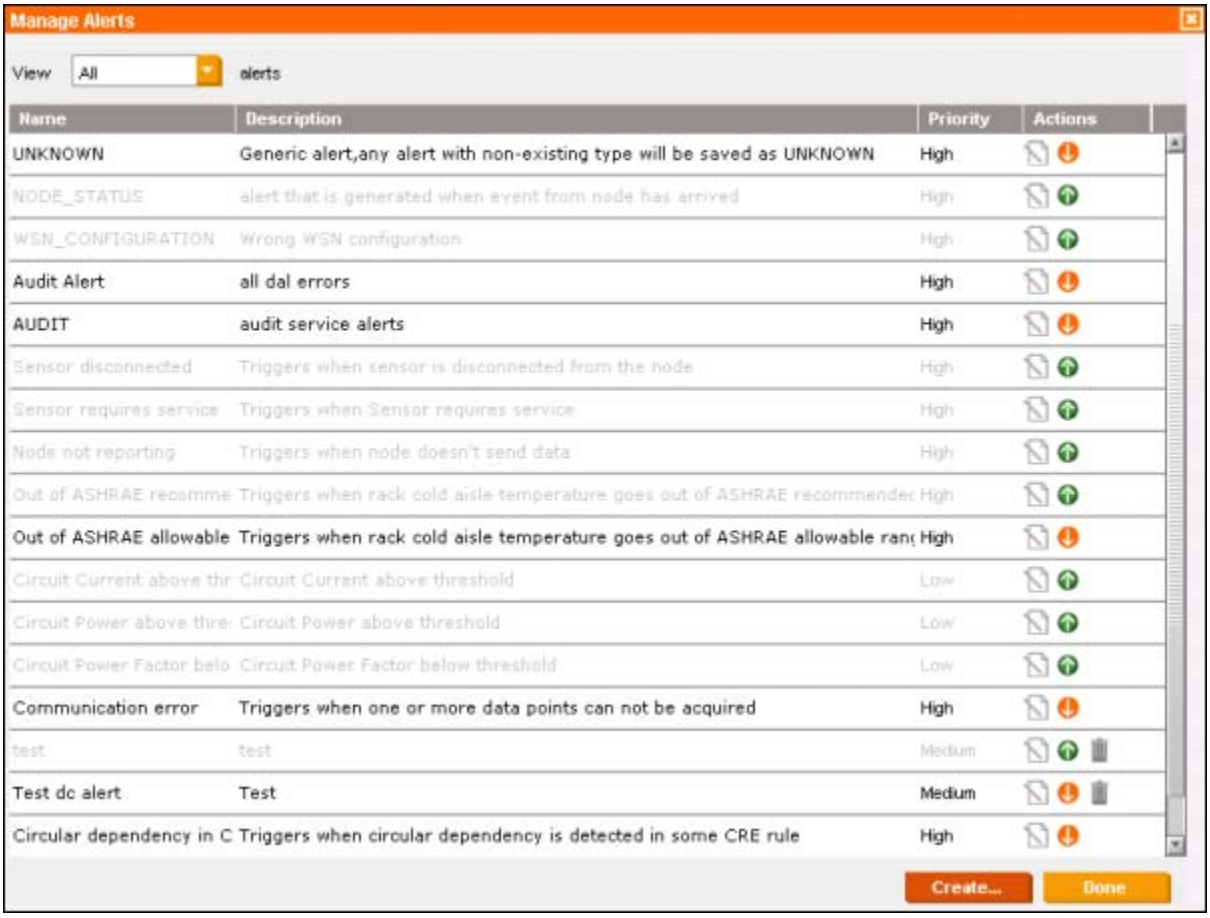
To view all Inactive alerts, select **Inactive** from the View menu.

Deleting individual alerts

NOTE: The system-defined alerts cannot be edited or deleted. You can deactivate the alert, if you no longer want to receive warning of the alerting condition. All user-defined alerts include a trash can icon on the Manage Alerts window, and can be edited or deleted at any time with the appropriate user credentials.

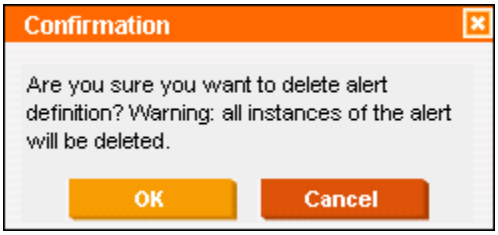
Before an object can be deleted from the system, any alerts associated with it must be cleared. Therefore the deletion of the object cannot be accomplished by the software alone. The administrator must remove the object from any associated alerts.

1. From the **Alerts** menu, select **Alert Management**. The Manage Alerts window appears.



2. Select the **Delete alert** icon to delete all alert-related data, including conditions and definitions, regardless of data center or zone. Unlike the clear operation, no historical data that refers to the deleted alerts is retained.

   A Confirmation window appears prompting you to confirm deleting the alert definitions.

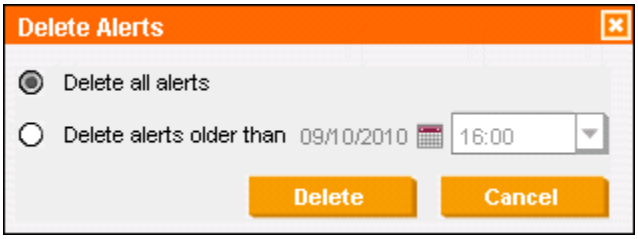

Confirmation
Are you sure you want to delete alert definition? Warning: all instances of the alert will be deleted.
OK
Cancel

   - Select **OK** to close the window and return to the Manage Alerts window. A message appears at the lower left of the Portal window informing you that the alert was successfully deleted.
   - Select **Cancel** to close the window and return to the Manage Alerts window without making any changes.

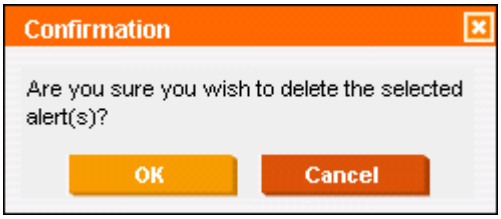
Deleting all alerts from database

If you **Delete all alerts** from the database, all alert instances are removed from the database. However, the associated alert definitions remain in the database and will continue to be monitored, unless you deactivate the alert.

1. From the **Alerts** menu, select **Delete Alerts from Database**. The Delete Alerts window appears.



   - Select **Delete all alerts** to clear all the alert instances from the database. A Confirmation window appears prompting you to confirm deleting all alerts from the database.



     — Select **OK** to permanently remove all alert instances from the system. A message appears at the lower left of the console window informing you that all alerts are successfully deleted.

     — Select **Cancel** to close the window without making any changes.

   - Select **Delete alerts older than** to select a date to define the alerts you want to delete.

Administration menu

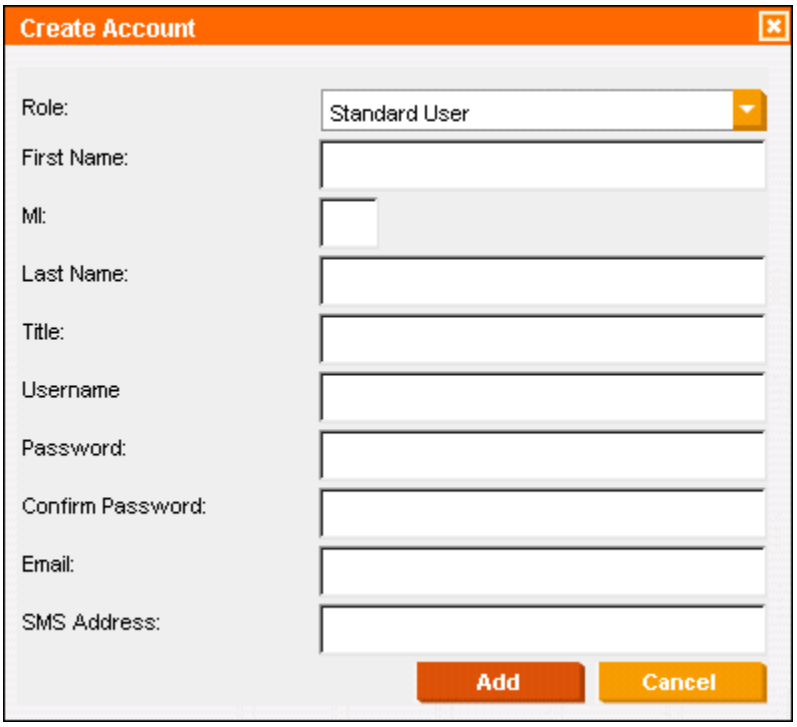
The Administration menu appears on the menu bar only when the administrator logs in to Observer.

The Administration menu offers the following options:

- Create Account
- User Accounts
- System Log
- Options

Creating user accounts

1. From the **Administration** menu, select **Create Account**. The Create Account window appears.



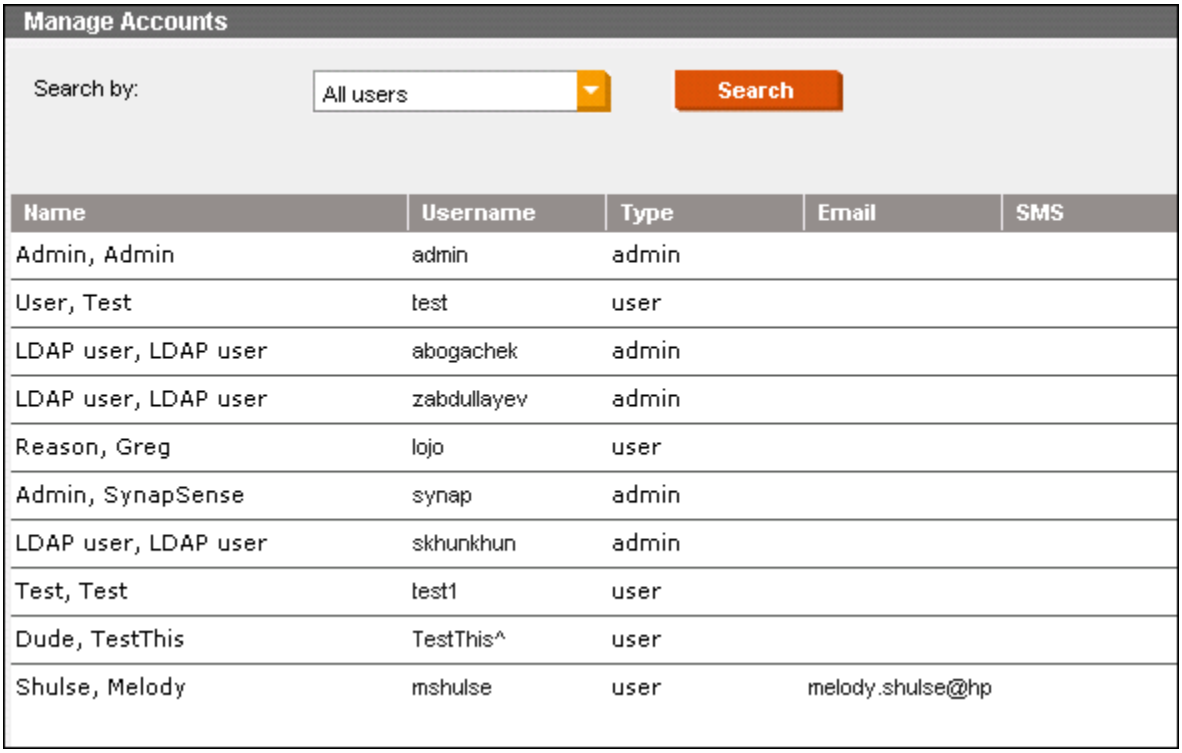
2. Select the role of the user account and complete the remaining fields for the user.
   - Users given the Administrator role automatically have access to all monitored data centers and associated zones.
   - Users given the Standard User role, by default, do not have access to any monitored data centers or zones. The access permission for that user must be assigned by an administrator. For more information about user permissions, see Setting permissions (on page 10).

     NOTE: A message appears at the lower left corner of the console window informing you that the task was successful.

3. Select **Add** to save and close.

User accounts

1. From the **Administration** menu, select **User Accounts**. The Manage Accounts window appears.



   - Search for user accounts
   - Change user passwords
   - Edit or delete a user

Searching for user accounts

An administrator can search for user accounts using the following criteria:

- All users
- First name
- Last name
- Email address
- Username
- User type

To search for a user account:

1. From the **Administration** menu, select **User Accounts**. The Manage Accounts window appears.
2. Search for a user account using one of the following methods:
   - **All user profiles** (default)—Select a user account from the list.

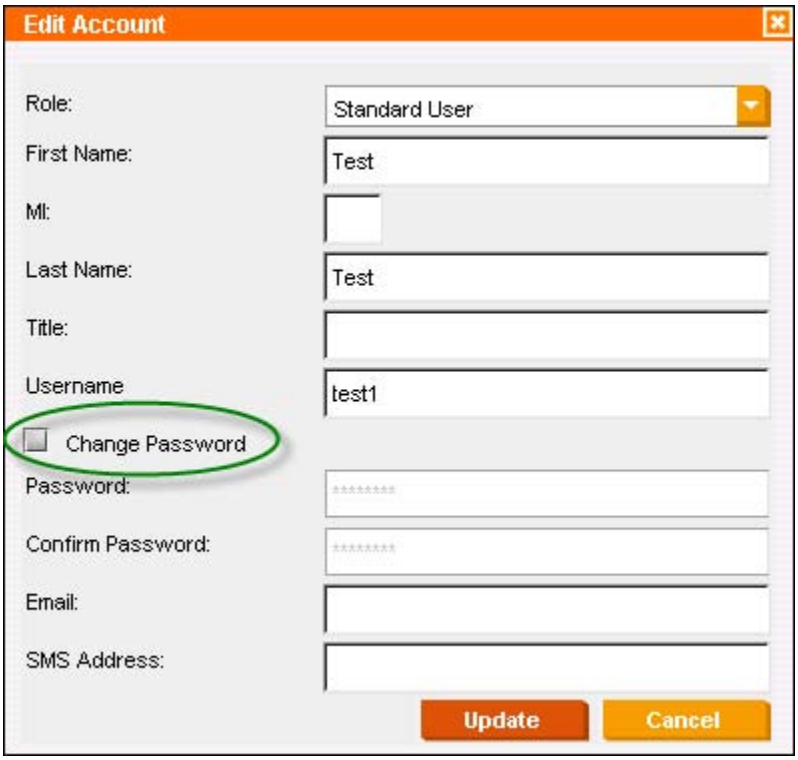
- **Search by**—Select criteria from the list.

3. If you search using the Search by list, enter the appropriate search criteria, and then select **Search.** If any user profile matches the search criteria, the columns are populated with the results.

Changing user passwords

To change the password for any user, you need the user name of the user whose password will be changed.

1. From the **Administration** menu, select **User Accounts**. The Manage Accounts window appears.
2. Search for the user ("Searching for user accounts" on page 84), and then select **Edit**. The Edit Account window appears.



3. Check the Change Password box, type in the new password and then confirm the password.
4. Select **Update** to save and close.

For more information, see Changing your password (on page 96).

Clearing active alerts associated with a user

To delete a user, all active alerts and custom queries associated with that user must be cleared. Either the user or an administrator can clear the associated alerts and queries.

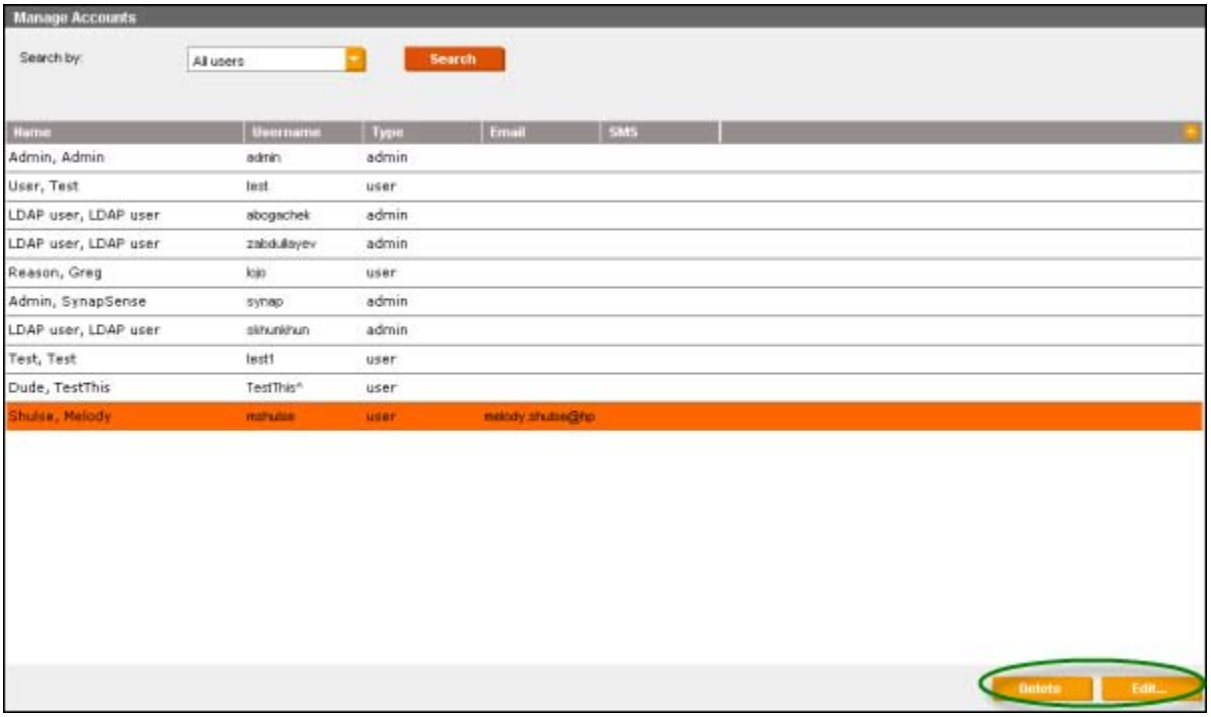
1. Log in to the Observer as the user.
2. Delete all custom queries ("Deleting individual alerts" on page 81).
3. Dismiss all active alerts ("Active Alerts tab" on page 51).

Editing or deleting users

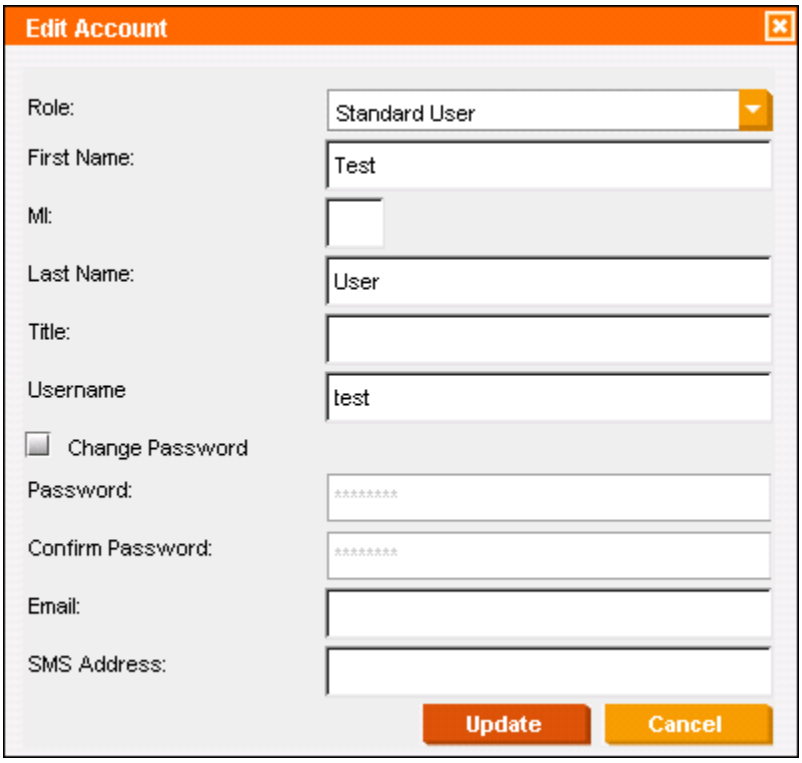
The default administrator account cannot be deleted. A user cannot be deleted if an active alert or custom query is associated with that user. For more information, see Clearing active alerts associated with a user (on page 86).

To edit or delete a user:

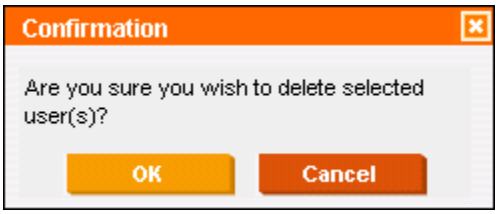
1. Search for the user account ("Searching for user accounts" on page 84).
2. Select the user account, and then select either **Edit** or **Delete** in the bottom right corner of the window.



- If you select **Edit,** the Edit User window appears. Update all required fields and select **Update** to save and close.



- If you select **Delete,** a confirmation window appears prompting you to confirm deleting the user. Select **OK** to delete the user and close.



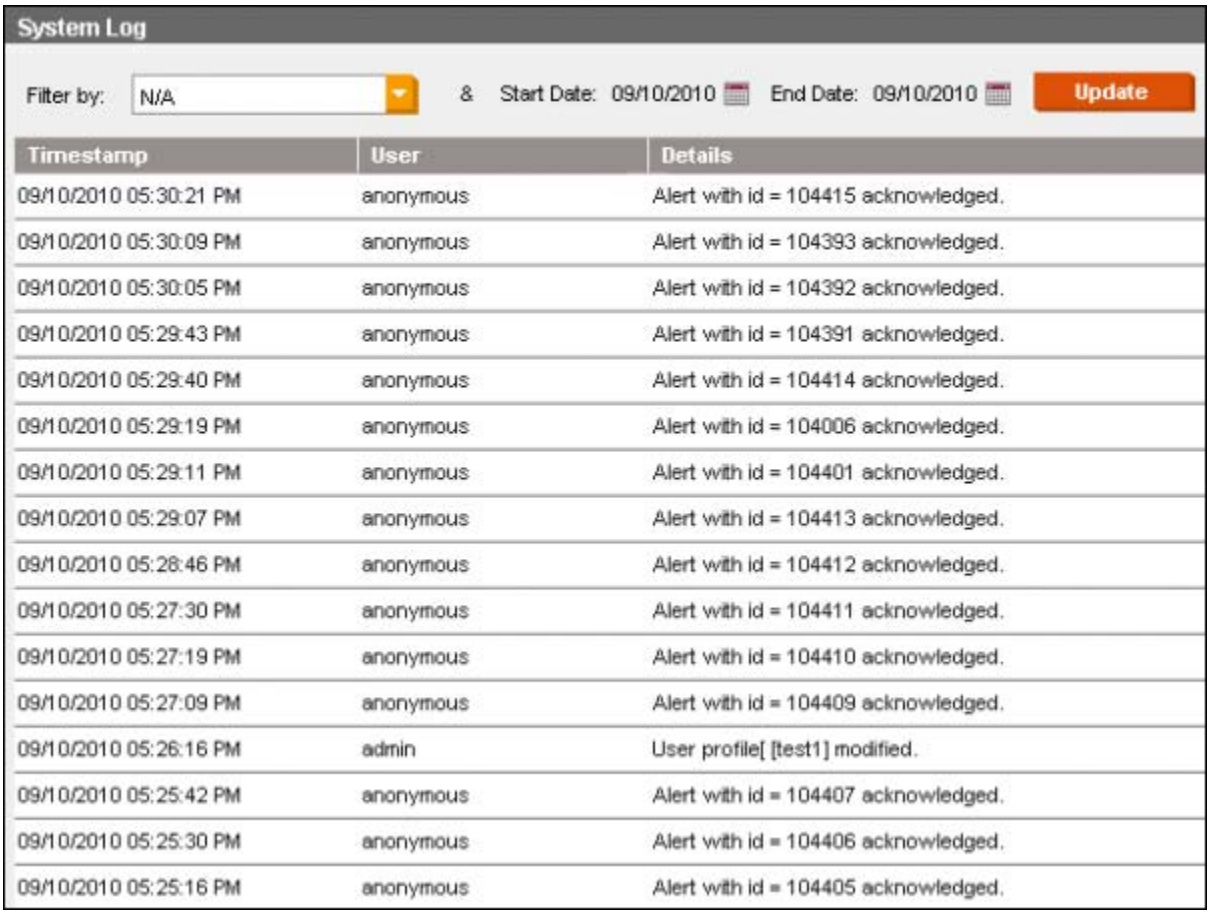
NOTE: A message appears at the lower left corner of the console window informing you that the task was successful.

Viewing the system log

The administrator can view the record log for the application, either in its entirety or after applying a data filter for specific information.

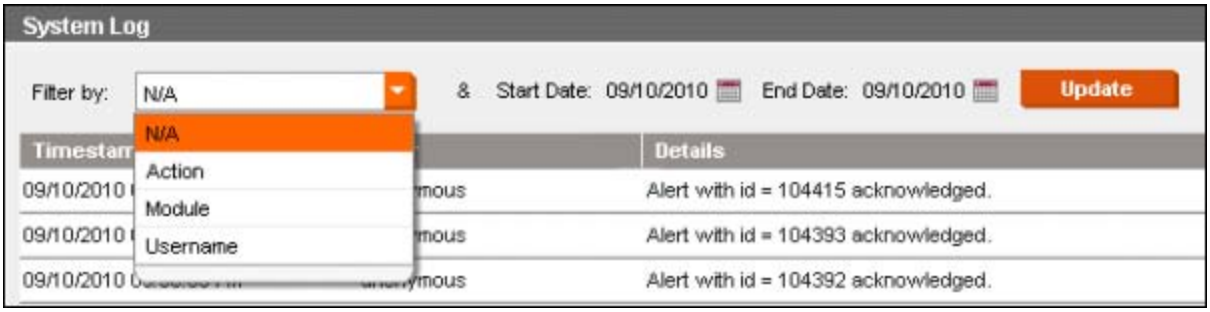
To view the system log:

1. From the **Administrator** menu, select **System Log.** The System Log window appears, detailing a list of user activities and the corresponding time stamps.


System Log
Filter by: N/A
&
Start Date: 09/10/2010
End Date: 09/10/2010
Update
Timestamp
User
Details
09/10/2010 05:30:21 PM anonymous Alert with id = 104415 acknowledged.
09/10/2010 05:30:09 PM anonymous Alert with id = 104393 acknowledged.
09/10/2010 05:30:05 PM anonymous Alert with id = 104392 acknowledged.
09/10/2010 05:29:43 PM anonymous Alert with id = 104391 acknowledged.
09/10/2010 05:29:40 PM anonymous Alert with id = 104414 acknowledged.
09/10/2010 05:29:19 PM anonymous Alert with id = 104006 acknowledged.
09/10/2010 05:29:11 PM anonymous Alert with id = 104401 acknowledged.
09/10/2010 05:29:07 PM anonymous Alert with id = 104413 acknowledged.
09/10/2010 05:28:46 PM anonymous Alert with id = 104412 acknowledged.
09/10/2010 05:27:30 PM anonymous Alert with id = 104411 acknowledged.
09/10/2010 05:27:19 PM anonymous Alert with id = 104410 acknowledged.
09/10/2010 05:27:09 PM anonymous Alert with id = 104409 acknowledged.
09/10/2010 05:26:16 PM admin User profile[[test1] modified.
09/10/2010 05:25:42 PM anonymous Alert with id = 104407 acknowledged.
09/10/2010 05:25:30 PM anonymous Alert with id = 104406 acknowledged.
09/10/2010 05:25:16 PM anonymous Alert with id = 104405 acknowledged.

2. To filter the information that appears, select the criteria from the **Filter by** drop-down menu, and select **Update.** The default is Show all activity.

   Additional fields might appear, depending on the criteria selected. Enter all appropriate information, and then select **Update.**



Administrative options

From the **Administration** menu, select **Options**. The Options window appears.

From the Options window, you can define the following options:

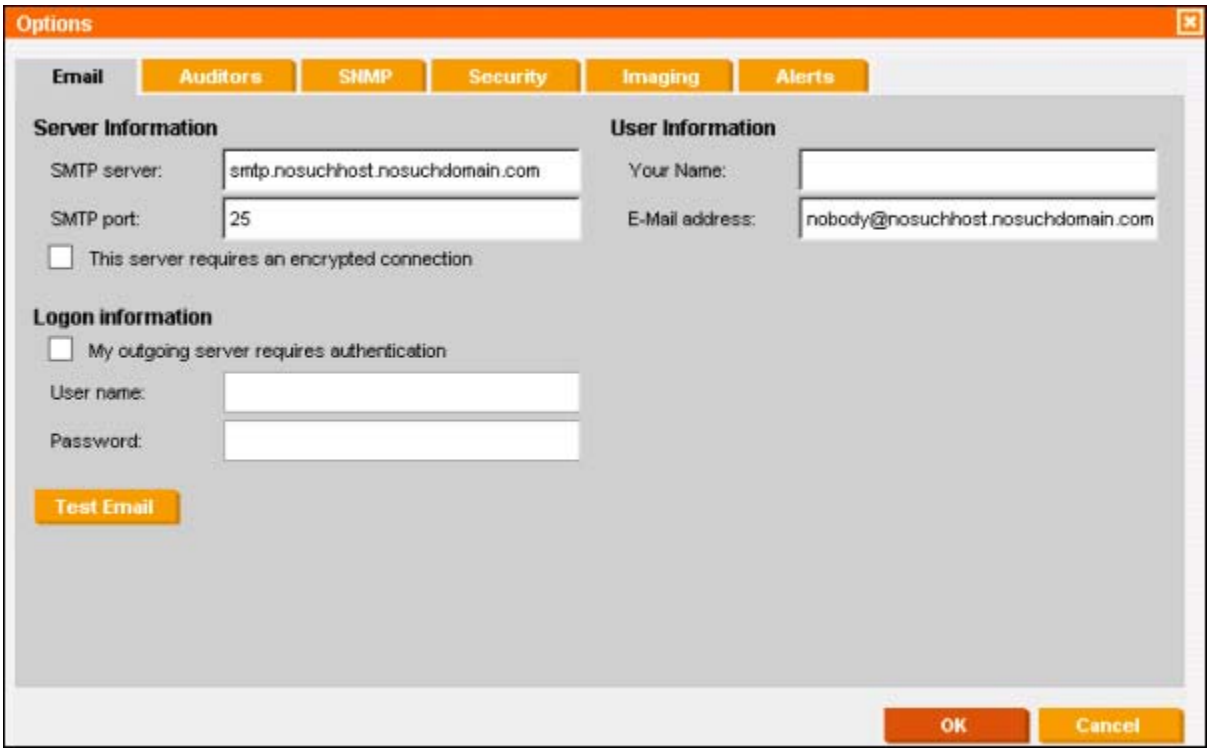
- Email
- Auditors

- SNMP
- Security
- Imaging
- Alerts

Email options

To define the email options:

1. From the **Administration** menu, select **Options**. The Options window appears.
2. Select the **Email** tab.



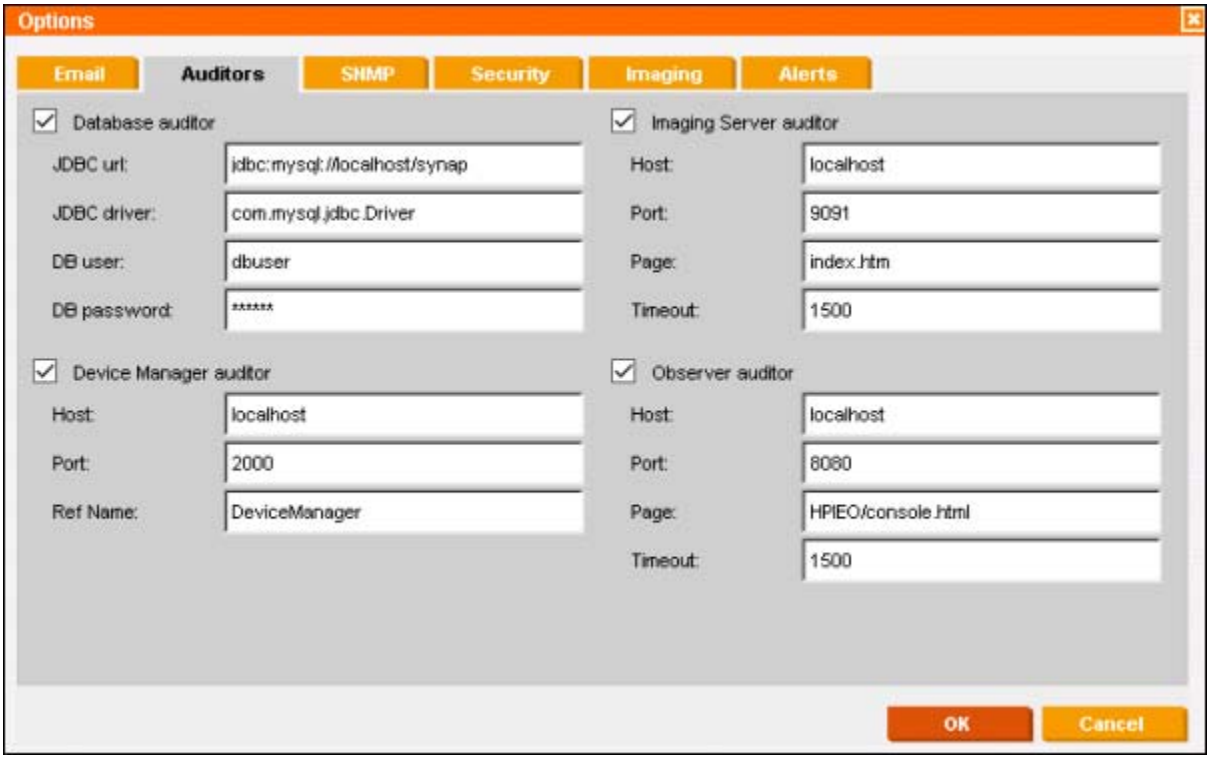
3. Define the following options:
   - Server information
   - Logon information
   - User information
4. To test your new settings, select **Test Email**. An email is sent to the address defined in the User information.
5. Select **OK** to save and close, or select **Cancel** to close without saving.

Auditors options

To define the auditors options:

1. From the **Administration** menu, select **Options**. The Options window appears.

2. Select the **Auditors** tab.



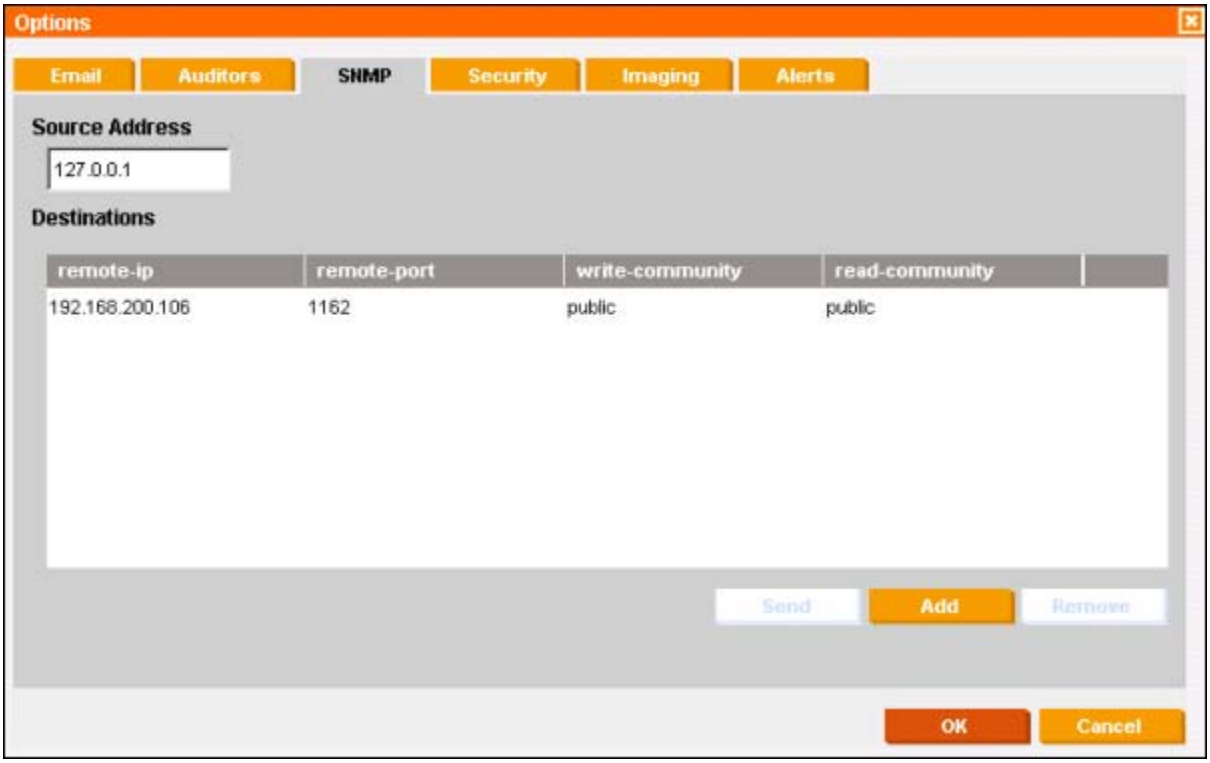
3. Define the following options:
   - Database auditor
   - Device Manager auditor
   - Imaging Server auditor
   - Observer auditor
4. Select **OK** to save and close, or select **Cancel** to close without saving.

SNMP options

To define the SNMP options:

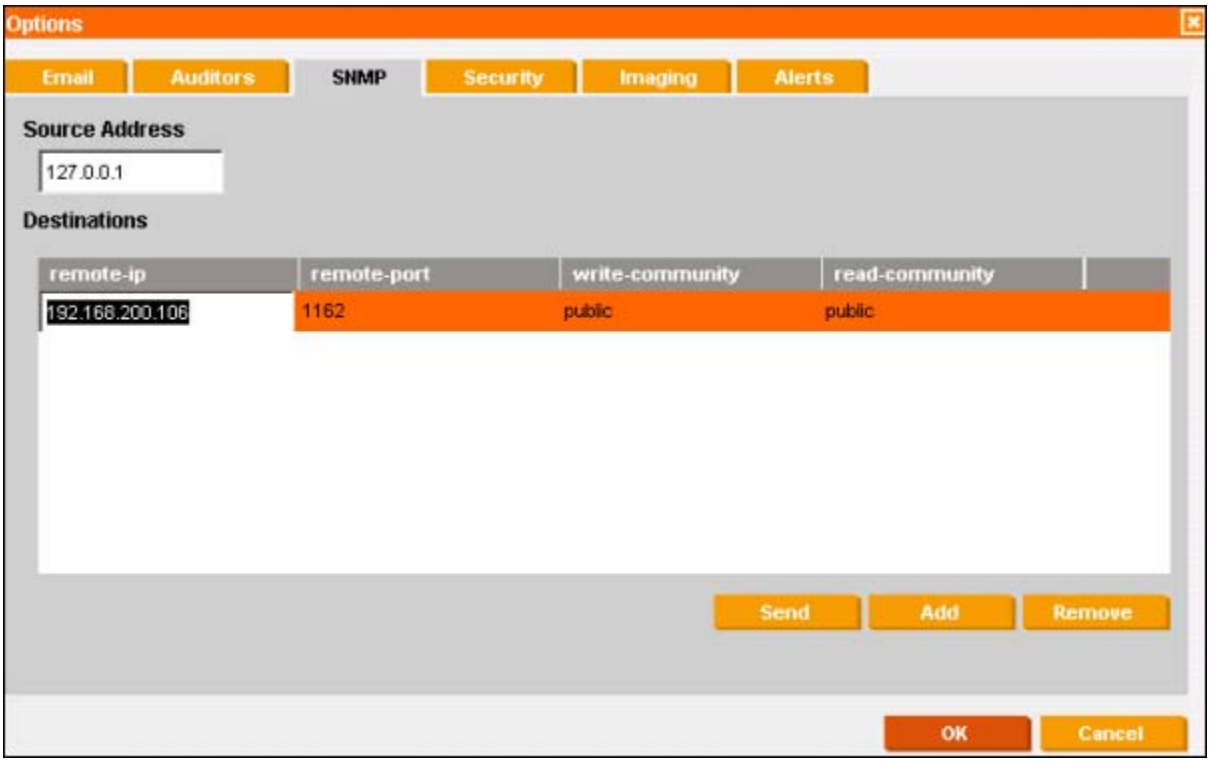
1. From the **Administration** menu, select **Options**. The Options window appears.

2. Select the **SNMP** tab.



3. Define the following options:
   - Source Address
   - Destinations
4. To add new destinations, select **Add**. A new row appears for you to enter the following information:
   - Remote IP
   - Remote Port
   - Write community
   - Read community
5. To send a test SNMP trap, highlight a destination, and then select **Send**.

6. To edit existing destinations, highlight the existing destination. You can type over the existing information. Select **OK** to save and close, or select **Cancel** to close without saving.



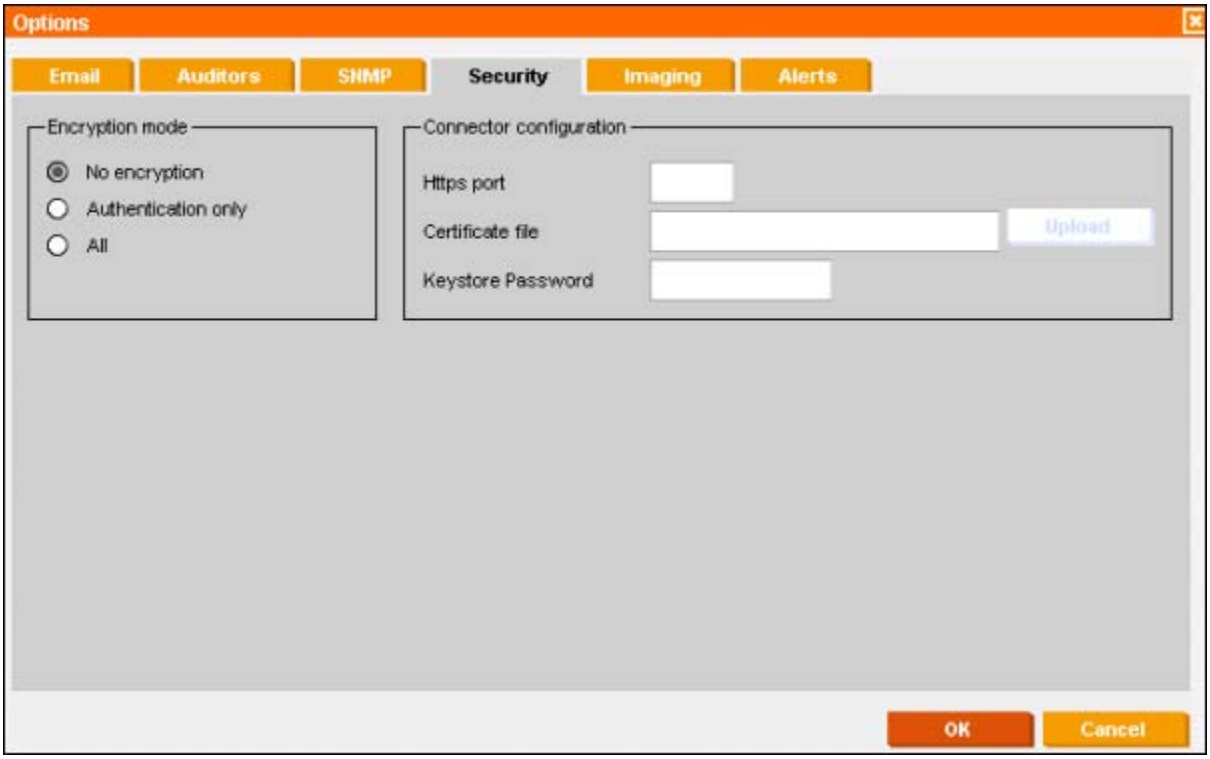
7. To remove existing destinations, highlight the existing destination and select **Remove**. The destination is removed from the Destination list.
8. Select **OK** to save and close, or select **Cancel** to close without saving.

Security options

To define the security options:

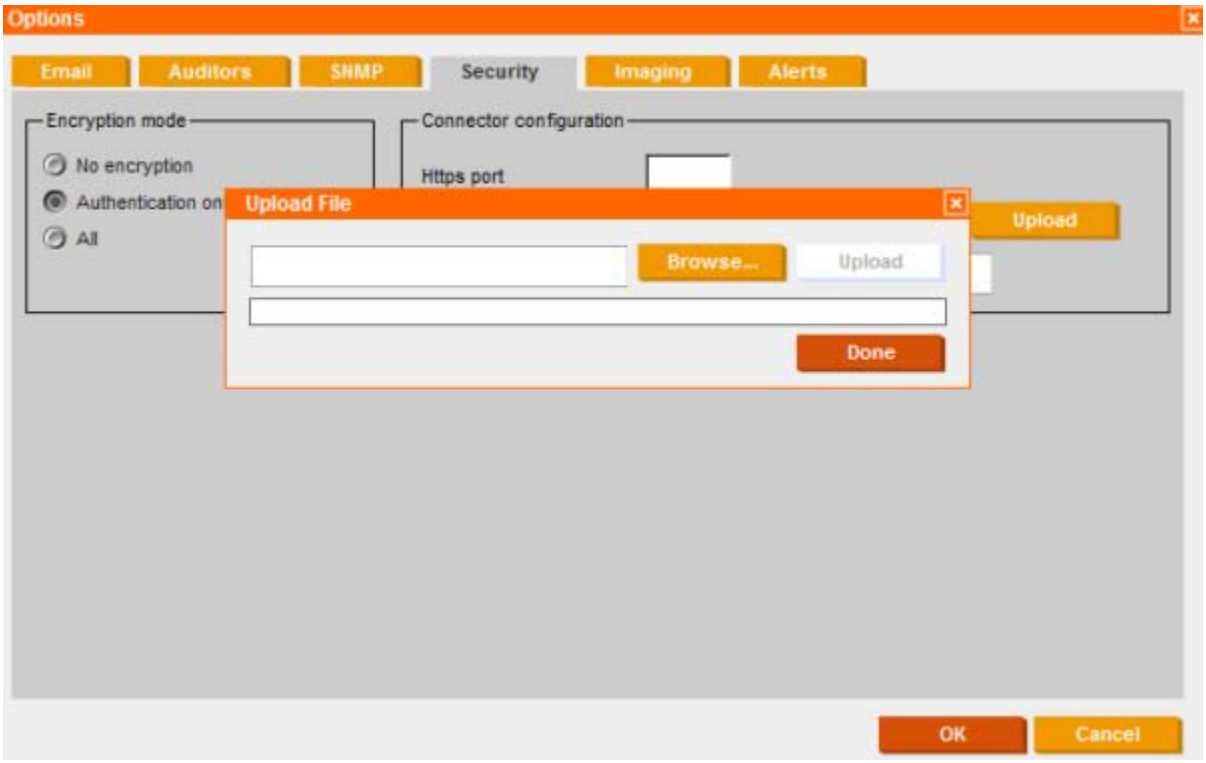
1. From the **Administration** menu, select **Options**. The Options window appears.

2. Select the **Security** tab.



3. Select the Web access security mode:
   - No encryption—(Default) Unsecured HTTP access.
   - Authentication only—Secured HTTPS access. During login, the user is authenticated through HTTPS before they can access the Observer web console. Once authenticated, the communication between the client browser and the Observer is not encrypted.
   - All—Secured HTTPS access and secure communication. During login, the user is authenticated. Once authenticated, communication between the client browser and the Observer remains encrypted. This method is the most secure, however, data performance, such as data transfer, might be affected.
4. To set up the secure Authentication only access, complete the Connector configuration.
   a. Specify the connection port, typically 443.

b. Select **Upload** to browse to and upload the keystore certificate file on the local machine. The Upload File window appears.



c. Select **Done** to save the certificate and close the window.

d. Enter the keystore password that was used to create the keystore.

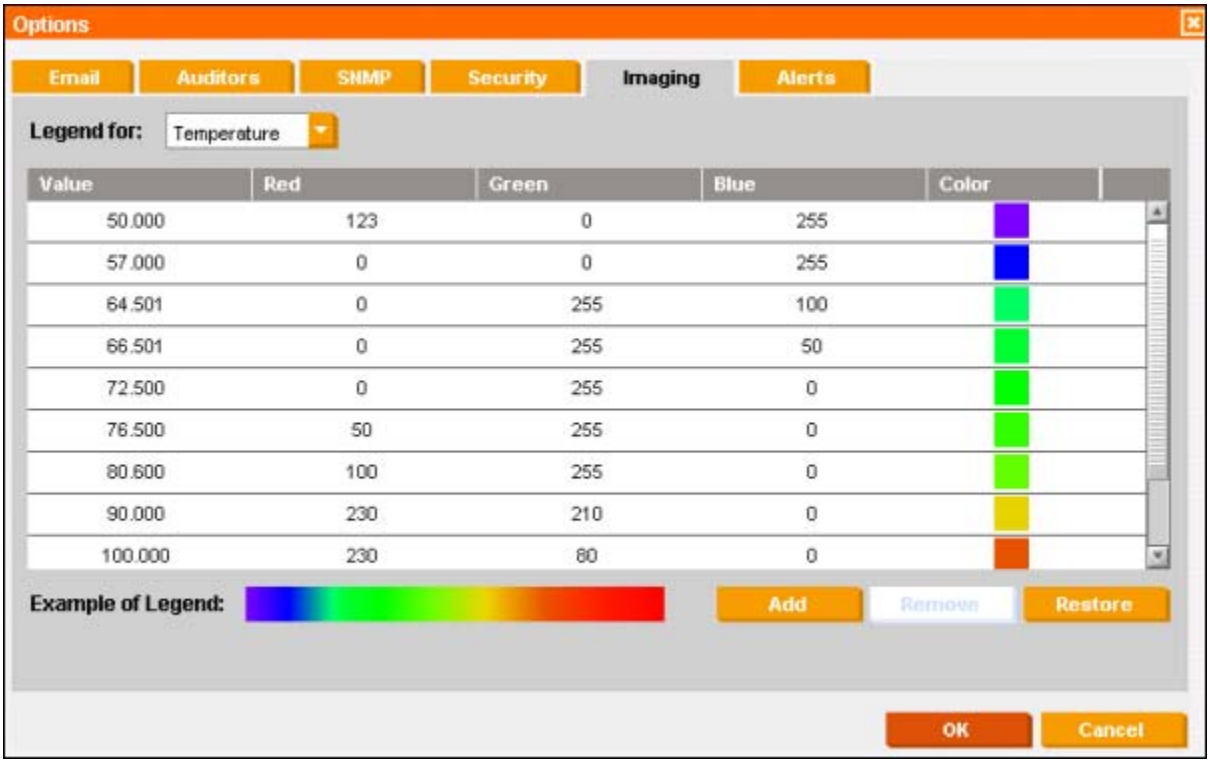
5. Select **OK** to save and close, or select **Cancel** to close without saving.

Imaging options

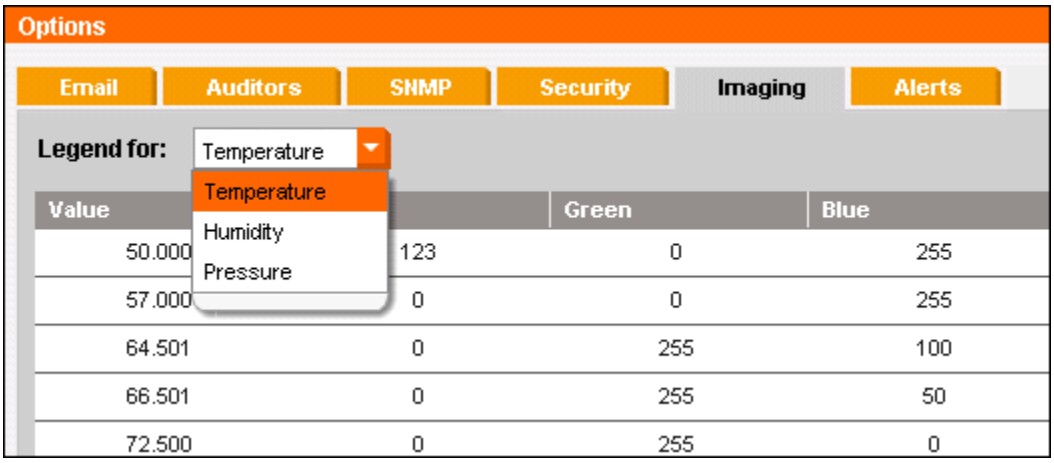
To define the imaging options:

1. From the **Administration** menu, select **Options**. The Options window appears.

2. Select the **Imaging** tab.



3. Select the Imaging legend you want to edit from the Legend for menu.



- Select **Add** to add a new color to the legend. You must define the value range for the color to represent.
- Select **Remove** to delete an existing color or value range from the legend.
- Select **Restore** to ignore all changes made on the Imaging Options page, and restore the Imaging settings to the previous state.

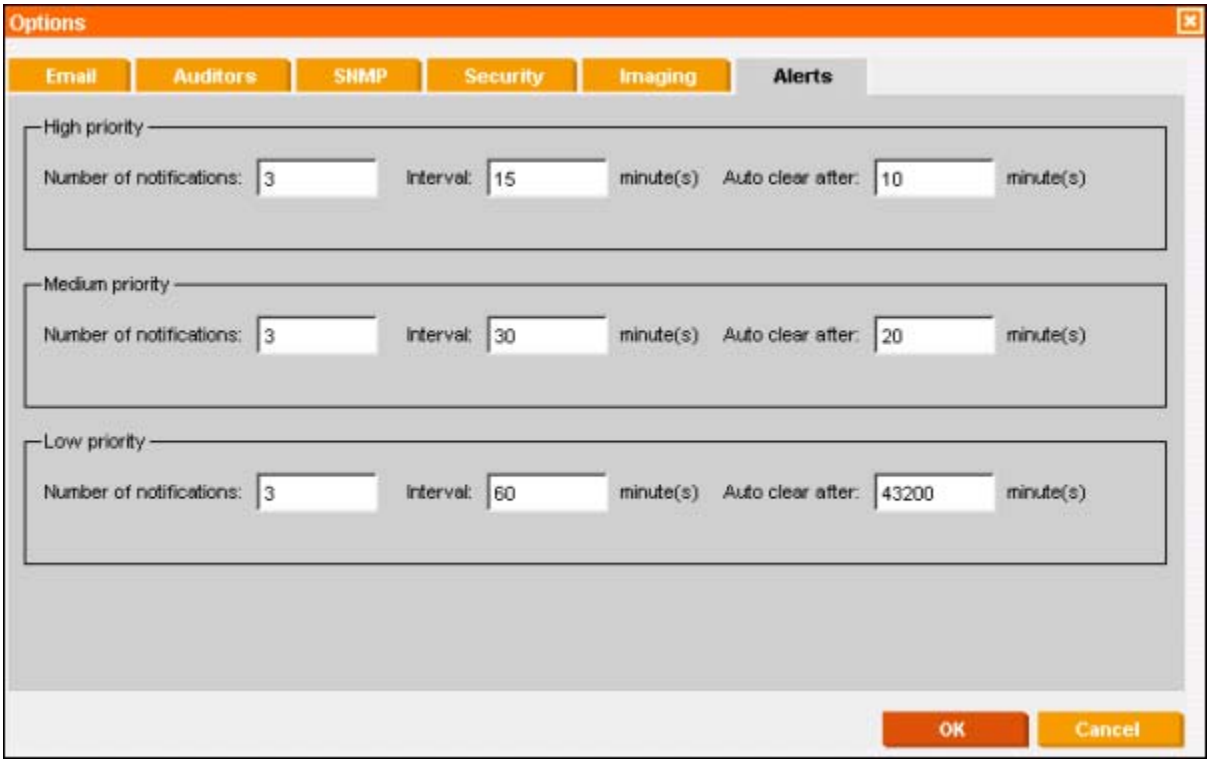
4. Select **OK** to save and close, or select **Cancel** to close without saving.

Alerts options

To define the alerts options:

1. From the **Administration** menu, select **Options**. The Options window appears.

2. Select the **Alerts** tab.



NOTE: The alert system sends one alert notification immediately following the alert condition. If the alert is not acknowledged, the system will send two additional reminder alerts at the time interval specified.

3. Define the time intervals for high, medium, and low priority alerts. Each alert priority can have an additional interval configured that will check the alert condition if the alert remains unacknowledged.
4. Define the time interval for the alert to automatically clear when the alert condition has cleared. The auto clear feature only works if it is enabled in the original alert definition. See Creating an alert definition (on page 74) for more information.
5. Select **OK** to save and close, or select **Cancel** to close without saving.

My Account menu

You can customize your options to suit your viewing preferences. All options are user-specific and remain the same from session to session.

The My Account menu offers the following options:

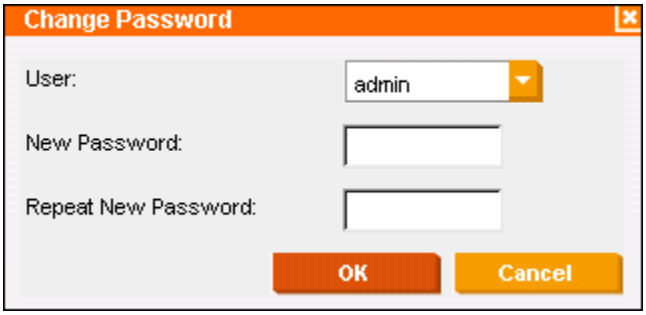
- Password
- Preferences

Changing your password

All users can change their own passwords. To change your password:

1. Select the **My Account** menu.

2. Select **Password.** The Change Password window appears.



3. Enter your new password.
4. Repeat the new password.
5. Select **OK**.

Changing your preferences

All users can set their own preferences. Preferences include:

- Session expiration time
- Data measurement units and decimal places
- Refresh interval
- Date and Timestamp format
- Alert intervals

To change your preferences:

1. Select the **My Account** menu.
2. Select **Preferences.** The Preferences window appears.
3. Change your preferences, and select **OK** to save and close.

Changing the general preferences

From the General tab, you can select the following options:

- Session expiration
- Navigation tree

To change your preferences:

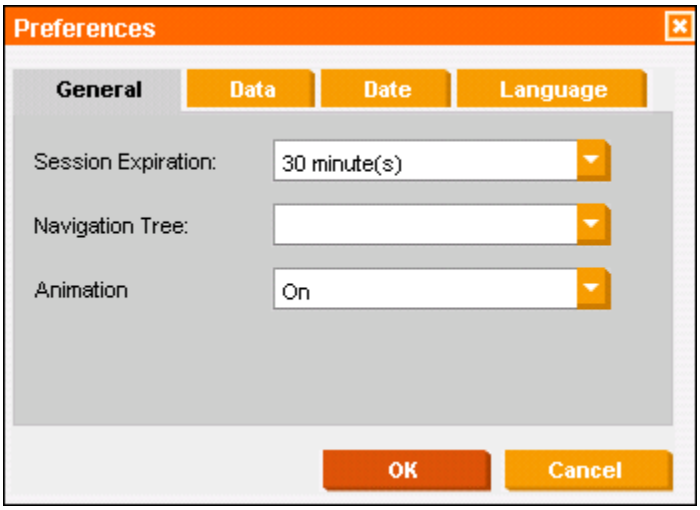
1. From the Preferences menu, select **General.**

   NOTE: The user login session expires after a period of inactivity, The default expiration period is 10 minutes.

2. Select your preferred session expiration time value from the menu.
   - 10 minutes
   - 15 minutes
   - 20 minutes
   - 25 minutes

- 30 minutes

3. Select your preferred Navigation Tree view from the menu.
   - Hide single leaves
   - Show all
4. Select your preferred animation view. If animation is On, every window fades out after closing. If animation is Off, every window automatically disappears after closing.



5. Select **OK** to save and close, or select **Cancel** to close without saving.

Changing the data display format

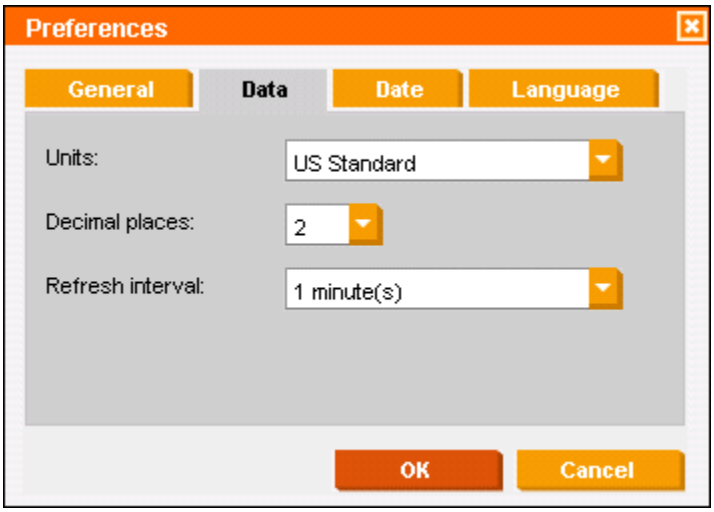
From the Data tab, you can select the following options:

- Units
- Decimal places
- Refresh rate

To change your preferences:

1. From the Preferences menu, select **Data.**
2. Select your preferred units:
   - US Standard (default)
   - Metric
3. Select the number of decimal places (1, 2, or 3).

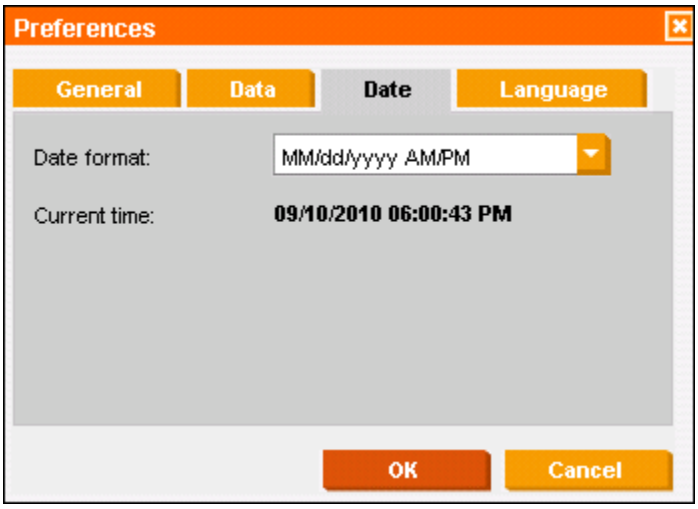
4. Select the refresh rate of the data tables in the application, from 0 to 60 minutes. The refresh rate refers to how often the data is refreshed on the screen. If you select 0 minutes, the application only refreshes data when you select the refresh button.



5. Select **OK** to save and close, or select **Cancel** to close without saving.

Changing the date format

1. From the Preferences menu, select **Date.**
2. Select from the following date formats:
   - MM/dd/yyyy HH:mm:ss
   - yyyy-MM-dd HH:mm:ss
   - dd.MM.yyyy H:mm:ss

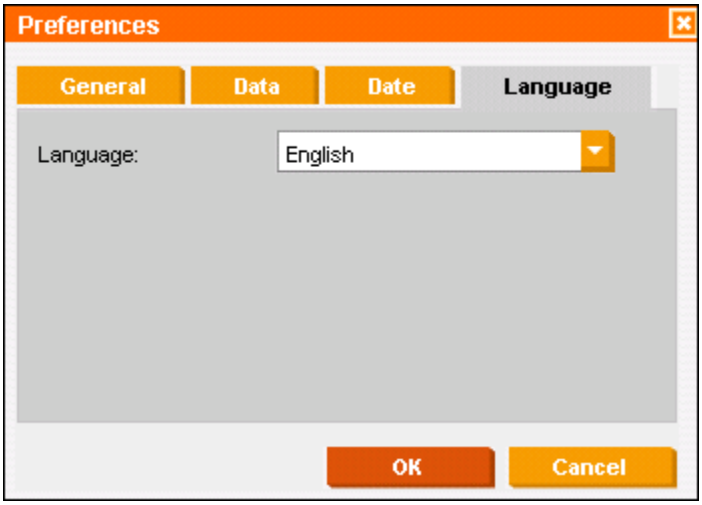


3. Select **OK** to save and close, or select **Cancel** to close without saving.

Changing the language

1. From the Preferences menu, select **Language**.

2. Select your preferred language from the menu.



3. Select **OK** to save and close, or select **Cancel** to close without saving.

Help menu

The Help menu offers the following options:

- User Guide
- About

Accessing the user guide

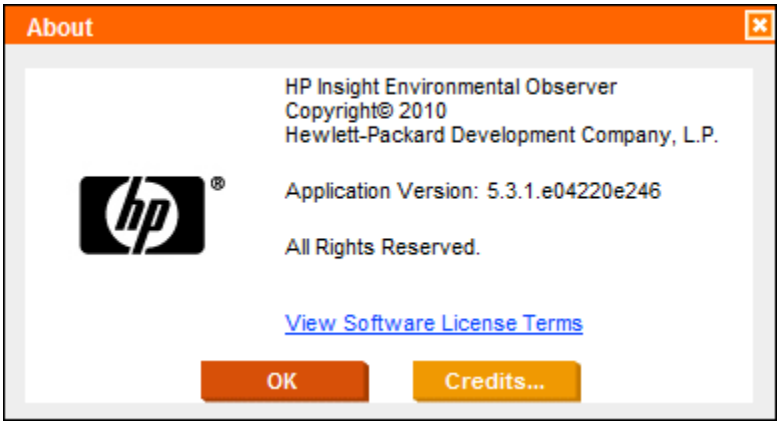
To view the *HP Insight Environmental Observer User Guide* online, save the file to your computer, or print:

1. From the **Help** menu, select **User Guide**. A document with the link to the user guide on the web appears.
2. Download the *HP Insight Environmental User Guide* PDF, and then use Acrobat® Reader to view, save, or print the file.

Viewing version information

To view information about the current release of the application:

1. From the **Help** menu, select **About.** The About window appears, displaying the version details.



2. Select **OK** to close.

Maintenance

Battery management

Due to the necessity of batteries for the basic functionality of the HP Insight Environmental Observer, you must closely monitor and maintain the life of the sensor batteries.

Generating battery reports

Battery reports might reflect an inaccurate condition, depending on when you run the report. If you generate the battery report after a recent installation or deployment, the battery report might show a depleted battery, due to the wireless device battery being on throughout the installation process.

For the most accurate battery report results, HP recommends waiting a minimum of one week of normal operation before you generate a battery report.

> **NOTE:** The sensor objects require approved lithium batteries, such as Energizer or Eveready L91 batteries, not alkaline batteries. When the battery report indicates that a battery is near end of lifetime, replace the battery immediately.

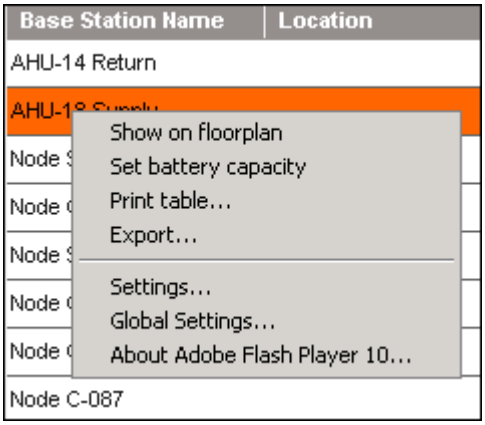
1. Select the **Reports** menu.
2. Select **Battery Report**. The Battery Report window appears.

Battery Report

Base Station Name	Location	Zone	Battery Life
AHU-14 Return		Comm and Storage	16.1 year(s)
AHU-18 Supply		Comm and Storage	16.1 year(s)
Node S-073		Comm and Storage	16.1 year(s)
Node C-082		Comm and Storage	16.1 year(s)
Node S-067		Comm and Storage	16.1 year(s)
Node C-077		Comm and Storage	16.1 year(s)
Node C-092		Comm and Storage	16.1 year(s)
Node C-087		Comm and Storage	16.1 year(s)
Node S-025		Comm and Storage	16.1 year(s)
Node SW-025-AK		Comm and Storage	16.1 year(s)
Node S-019		Comm and Storage	16.1 year(s)
AHU-14 Supply		Comm and Storage	16.1 year(s)
Node S-013		Comm and Storage	16.1 year(s)
Node SW-019-AJ		Comm and Storage	16.1 year(s)
Node S-079		Comm and Storage	16.1 year(s)

The report is automatically generated based on sensor readings. It provides estimated battery life for all object batteries and suggests recommended replacement parameters.

- The scroll bar enables you to see the entire report.
- Right-click a row to access the context menu, and then select from the menu.

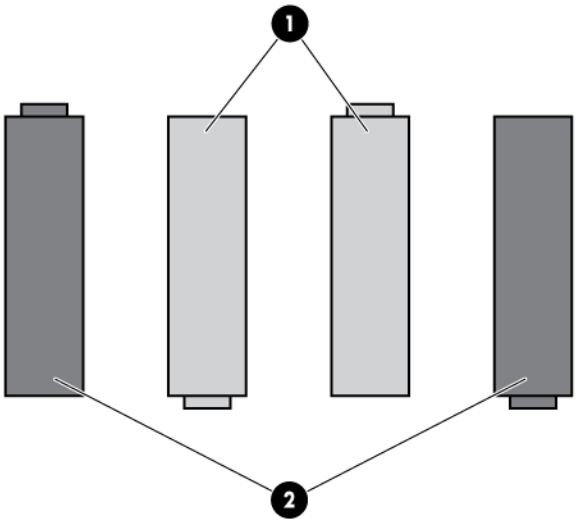


Replacing batteries

Observer sensor objects require approved lithium batteries for long lifetime, such as Energizer or Eveready L-91 batteries. When replacing the batteries in a sensor object, use the same battery type.

1. Do not disconnect the sensors or remove the sensor object from its installed location.
2. Press and lift the tabs on both sides to remove the battery cover.

   Inside the battery cover is the diagram that illustrates which pairs of batteries to remove to enable the object to continue reporting data.



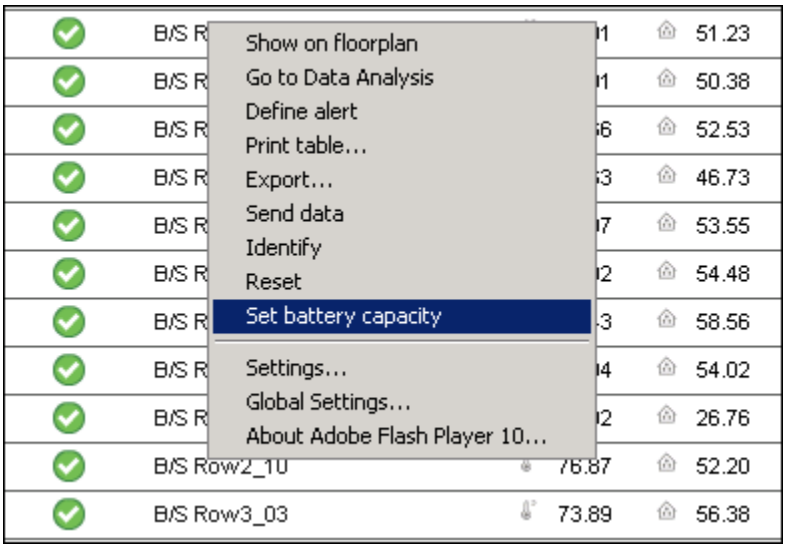
△ **CAUTION:** If you remove the left or right pair of batteries instead of the inside or outside pair, the sensor object loses power and cannot report data to the Observer.

3. Remove the inside pair of batteries (1) and replace with new lithium batteries.
4. Remove the outside pair of batteries (2) and replace with new lithium batteries.

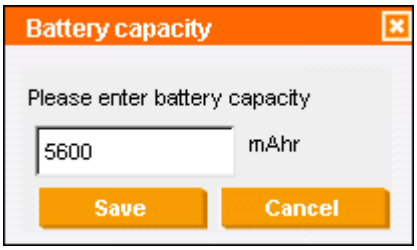
5. Replace the battery cover.

> **NOTE:** Before you update the Observer battery capacity, replace all required batteries in the sensor objects.

6. Update the battery capacity in the Observer.
   a. Log in to Observer as an administrator.
   b. From the Navigation window, select the data center where the base station is located.
   c. Select the **Base Stations** tab.
   d. Right-click the base station whose battery you changed.



   e. Select **Set battery capacity**. The Battery capacity window appears.



   f. Enter the number of milliamp hours (mAhr) of the new battery. New lithium batteries generally have 5600 mAhr.
   g. Select **Save,** and repeat the process for the next sensor object.

System backup

HP recommends backing up the Observer configuration (DL) file and corresponding database on a regular schedule.

> **NOTE:** You can compress the back-up database dump in order to minimize the disk storage space.

To back-up the Observer data, save the following files to either a remote back-up server or a back-up media device:

- Most recent DL file that was used to export the configuration to the server

- The mySQL database

  ```
  mysqldump - root -pdbuser -e -q --single-transaction synap >
  dbbackup.sql
  ```

- (Optional) Environmental images—The image files might require a large amount of disk space to back-up. HP recommends only backing up the image files if you want to record past environmental images.

  ```
  C:\Program Files\HP\HP Insight Environmental Software\HP Insight
  Environmental Imaging Server\output
  ```

System restore

If you need to restore files or move the database to a new server:

1. Install all of the software components on the new server. See the *HP Insight Environmental Software Installation Guide* for the software installation instructions.
2. Verify that the init_db batch file was run, recreating the database objects.
3. Shut down all software components running on the current server.
4. Restore the mySQL database from your back-up files.

   ```
   mysql -u root -pdbuser synap < dbbackup.sql
   ```

5. Restart each of the software components.
6. Load the saved configuration (DL) file, and then re-export the file to the new server.
7. If the environmental images were backed up, copy the saved images to the relative folder location on the new server. Maintaining the same folder location ensures that the database references remain valid.

Troubleshooting

HP Insight Environmental software troubleshooting

Problem	Solution
I browse to the HP Insight Environmental Observer home page, but the page does not load.	Verify the following: • All software components are installed correctly. • The home page URL is typed correctly. • The client machine where the browser is running is on the same network as the HP Insight Environmental server. • HP Insight Environmental Application Server service is running on the HP Insight Environmental server. The Application Server must be running to enable Observer web access. • Port 8080 (http) and port 443 (https) are enabled, and are not being blocked by the Windows® firewall.
I successfully browse to the HP Insight Environmental Observer home page, but the client window on the right side of the console interface is blank.	Verify that the configuration data for your data center has been exported to HP Insight Environmental Application Server. Use HP Insight Environmental Configurator to configure your data center information before exporting. For more information, see the *HP Insight Environmental Configurator User Guide*.
I successfully browse to the HP Insight Environmental Observer home page, but the client window on the right side of the console interface does not show the data center Overview floor plan.	The data center floor plan background image (*.PNG) file is either missing or corrupted. For more information about creating and exporting the data center background image, see the *HP Insight Environmental Configurator User Guide*.
I have rebooted HP Insight Environmental server, but the Application Server is not starting.	One of the application variables is not set correctly. Verify that the JBOSS_HOME and JAVA_HOME variables point to the correct installation folders.
The database is partially corrupted.	The server was not shut down correctly or the software installation was unsuccessful and terminated. Verify the following steps are taken: • Stop all software components and restart MySQL to recover corrupted tables. • Delete JBoss hypersonic database to remove back logs of data. You might lose some sensor history. a. Stop the Application Server. b. Delete data, temporary, and work directories from the JBOSS_HOME/server/default folder. c. Restart the Application Server. • Restart the different software components, and then verify that each component is functioning normally. The updated data appears in the Observer software.
The Observer software is updating the	Verify the following:

Problem	Solution
data slowly.	• A good network connection exists between the browser client and the Observer Server. • The database has been optimized for performance. In the MySQL folder, increase the MySQL cache parameter to: innodb_buffer_pool_size=1000M • The Observer Server has enough memory.
There is little or no data from the wireless base stations.	Verify the following: • There is a good wireless connection between the wireless base stations and the gateways. Verify that each device has a green status on the Wireless Sensor Network tab (on page 53). If the device status is yellow, power cycle the wireless base station and allow it to rejoin the wireless network. • There is a good network connection between the base station gateway and the Observer server. If the gateway device status is yellow, ping the gateway from the server. • The firewall settings are not blocking specific communication ports used by the Observer Server or the base station gateways.
The wireless base station has a green status on the Base Station tab, but the associated rack object has a red status on the Racks tab.	The green status of the base station indicates that the base station is communicating normally with the gateway. The red status of the associated rack object indicates that there is an alert condition of at least one active alert on the rack object. The alert must be cleared before it can return to a normal green status.
There is no Power Meters tab displayed on the Observer interface.	An ION power meter must be installed, configured, and exported in order to display on the Observer interface. If there are no power meters to monitor, the Power Meters tab does not appear.
There are no data values displayed for my power meter devices.	An issue exists with either your physical or virtual Modbus connection. Verify the following: • The power meter is installed and configured correctly. For more information about installation or configuration, see the *HP Insight Environmental Hardware Installation Guide* and the *HP Insight Environmental Configurator User Guide*, respectfully. • There is continuous communication between the Modbus gateway, the Modbus base stations, and the Application Server. You can verify all activity from the Device Manager folder, under the dm.log. • The Modbus Plug-In is installed as an optional device of the Device Manager.
I am a new user and I cannot login to the Observer console.	Verify that your user information has been configured and you have the appropriate permissions to access the data center and zone information. For more information about user permissions, see Setting permissions (on page 10). If you still have issues, contact your HPIEO system administrator.
I can view information at the data center level, but I cannot view any information at the zone level.	Users must have permission to view both data center and zone levels. Contact your HPIEO system administrator to add user access to applicable zones.
On the Imaging tab, there are no static	The imaging service might have been interrupted or stopped during

Problem	Solution
or animated images available within a specific time frame.	that time period, therefore there are no historical images available to display.
I recently replaced the batteries in a wireless base station, but the battery report shows a very low battery life.	Verify the following: • The batteries were replaced correctly, and the battery capacity was reset. For more information, see Replacing batteries (on page 103). • The base station has been operating normally and communicating wirelessly with the gateway for a minimum of one week.
I cannot view some of the power meter values I have configured for calculating PUE data. How can I display them?	Add and configure an Inspector object in the HP Insight Environmental Configurator software, and then associate the power meter value you want to monitor. Once the updated project is exported, the power meter value appears on the Custom Metrics tab.

Before you contact HP

Be sure to have the following information available before you call HP:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Product identification number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP contact information

For the name of the nearest HP authorized reseller:

- See the Contact HP worldwide (in English) webpage (http://welcome.hp.com/country/us/en/wwcontact.html).

For HP technical support:

- In the United States, for contact options see the Contact HP United States webpage (http://welcome.hp.com/country/us/en/contact_us.html). To contact HP by phone:
  - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
  - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the HP website (http://www.hp.com/hps).
- In other locations, see the Contact HP worldwide (in English) webpage (http://welcome.hp.com/country/us/en/wwcontact.html).

Acronyms and abbreviations

ASHRAE

American Society of Heating, Refrigerating and Air-Conditioning Engineers

BCMS

branch circuit monitoring system

BPA

bypass air flow

CRAC

computer room air conditioning

CRAH

computer room air handler

CRE

Calculation Rules Engine

CSV

comma-separated value

cTROf

cold top inlet air temperature rate of change

DAL

Data access layer

ID

identification

IP

Internet Protocol

LED

light-emitting diode

PDI

Power Distribution, Incorporated

PUE

power usage efficiency

RA

recirculation air flow

RAM

random access memory

RCI

Rack Cooling Index

SMS

System Management Server

SQL

structured query language

SSL

Secure Sockets Layer

URL

uniform resource locator

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